AMSTRAD COMPUTER USER

ACU

Games
galore and prizes
aplenty must be won
inside your favourite monthly
CPC extravaganza

MAY 1991

£1.45



EXTERMINATE!

Conniving creepy-crawlies get their come-uppance at last in Audiogenic's outrageous Exterminator

LINK-UP

Get to grips with the ultimate in CPC networking

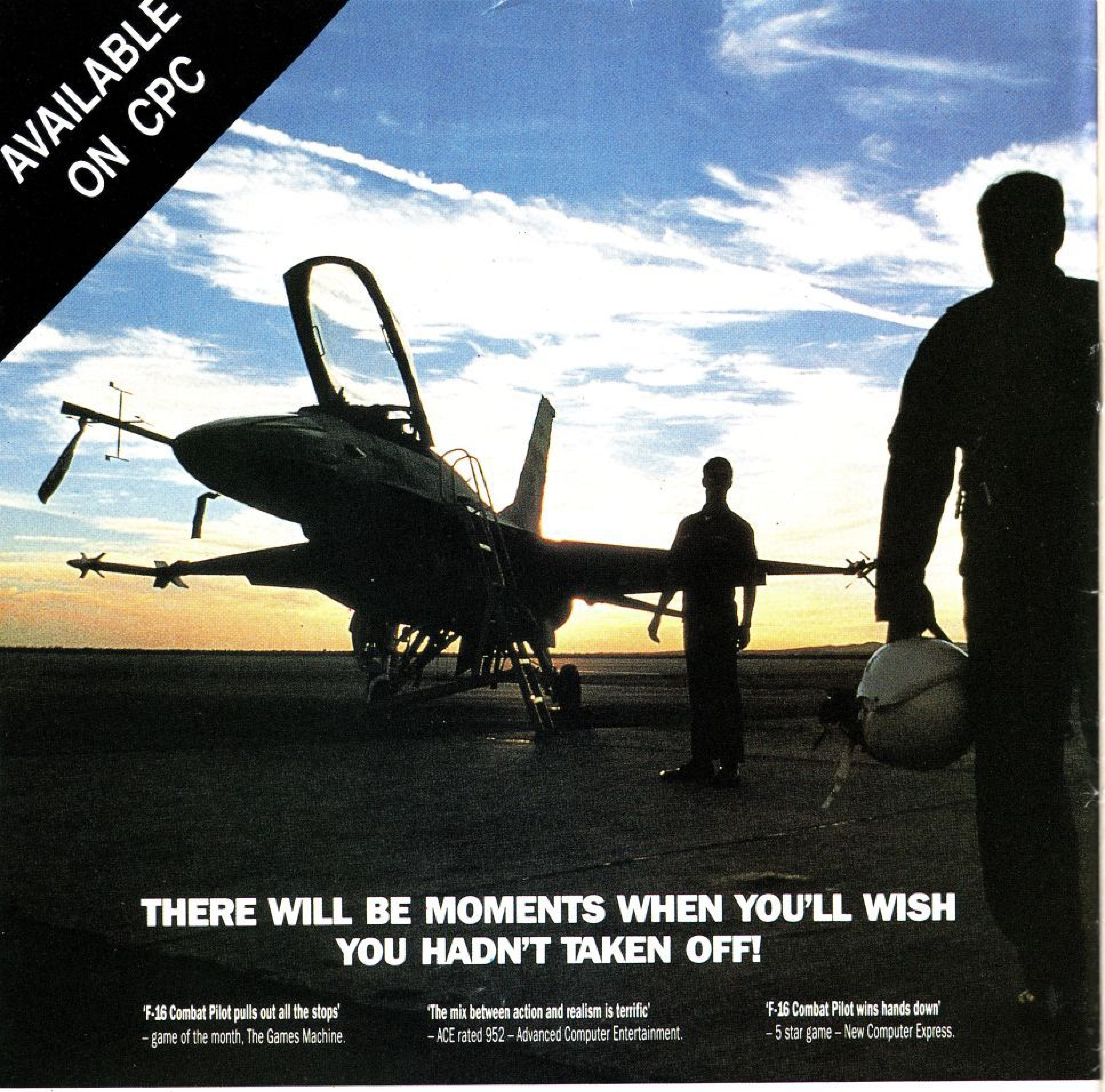
THE RIGHT TYPE

Learn the easy way to professional publishing

FACT OR FICTION?

MYTH becomes reality in ACU's latest cartoon walk-through epic

05
9 770952 304013



THERE WILL BE MOMENTS WHEN YOU'LL WISH YOU HADN'T TAKEN OFF!

'F-16 Combat Pilot pulls out all the stops'
– game of the month, The Games Machine.

'The mix between action and realism is terrific'
– ACE rated 952 – Advanced Computer Entertainment.

'F-16 Combat Pilot wins hands down'
– 5 star game – New Computer Express.

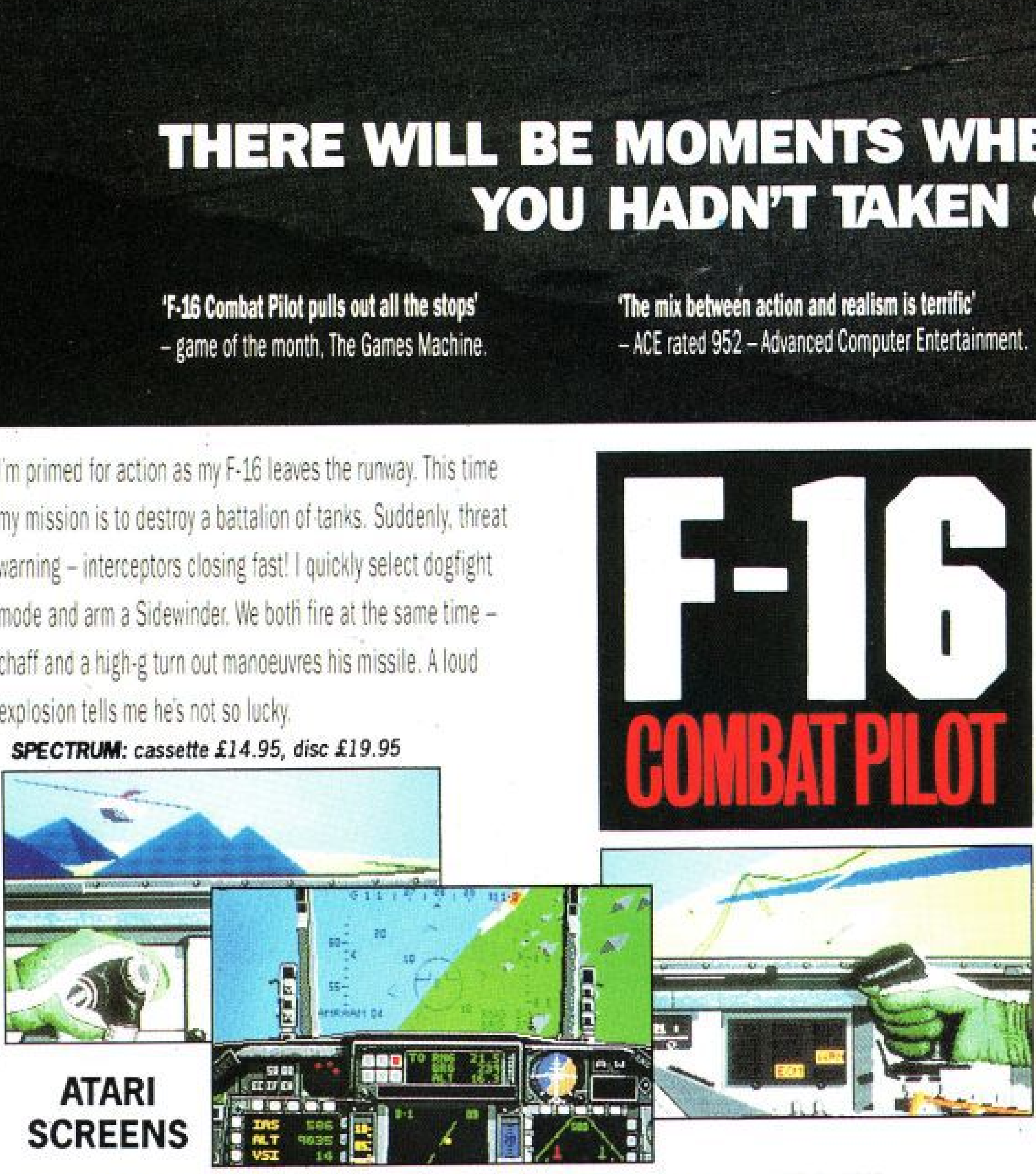
I'm primed for action as my F-16 leaves the runway. This time my mission is to destroy a battalion of tanks. Suddenly, threat warning – interceptors closing fast! I quickly select dogfight mode and arm a Sidewinder. We both fire at the same time – chaff and a high-g turn out manoeuvres his missile. A loud explosion tells me he's not so lucky.

SPECTRUM: *cassette £14.95, disc £19.95*

F-16 COMBAT PILOT

Flying fast and low, I turn my F-16 towards my target. Time to switch on the ground radar and arm the laser-guided Mavericks. I fire six missiles in quick succession, Lantirn automatically locking on to each tank. With flak bursting around me I dive for cover and head for home. Approaching base, I contact the tower and request a talkdown for my night landing.

Order your F-16 Combat Pilot now, simply telephone (0276) 684959 quoting VISA or ACCESS credit card number, name and address.



BLACK BOX

Digital Integration
The Real World of Simulation

Digital Integration Limited
Watchmoor Trade Centre,
Watchmoor Road, Camberley,
Surrey GU15 3AJ

'F-16 Combat Pilot is a milestone in C64 programming - a true achievement'
- 88% - Your Commodore

NEW - 800K SOFTWARE - FREE

We are proud to announce MS800, the NEW STANDARD in 800k per disk software, and doubly proud to be giving it FREE with our 3.5" DUAL DRIVE. *It is no longer necessary to pay an extra £20 to £30 for additional 800k software.* Our new MS800 software is all you need to store up to 800K on each 3.5" disk.
FEATURES INCLUDE: select 360k or 400k per side or even 2 x 180k per side (allows MULTIFACE II users to save to 3.5" disks in the B drive); choice of 64 or 128 directory entries; verify disks, CPM compatible; 464/6128 PLUS compatible and more.

MS800 can be bought separately for £9.95

THE NEW STANDARD IN 800k STORAGE

Formatting up to 400k on each disk side needs a SIDE SWITCH to be fitted to the drive. Our drives already have one fitted but for £3 we can supply a kit and instructions to fit one to any double sided 80 track 3.5" or 5.25" drive.

3 1/2" DUAL MODE DISK DRIVE £79.95

800K STORAGE PER DISK — PLUS £3 CARRIAGE
FREE MS800 OR FREE MAXIDOS - YOU CHOOSE

Not only are our drives the best selling for both CPC's and PLUSs but they are:-
The **MOST RELIABLE** 3.5" disk drive available (TEAC); the **MOST COMPACT** drive of any size (4" x 6.75" x 1"); the **BEST PRICE** by far of any 3.5" drive; easily the **BEST FREE SOFTWARE** (the major utilities, Maxidos and Procopy, were until recently, sold at £13.75 each!); **FORMAT TO 800K** on each disk (MS800, ROMDOS, RAMDOS or RODOS is needed for this); **UNIQUE SIDE SWITCH** allows you to use the drive as a STANDARD B DRIVE, formatting to 178K free on each side of the disk. Everything that can be done with an FD1 can be done with our 3.5" drive. Now you can choose **NORMAL** OR '**BIG DISK**' mode.

Supplied ready to plug in and use. Please state 464, 664, 6128, 6128 PLUS

DDI-1 DISK DRIVE £79.95
464 PLUS VERSION - £84.95

The DDI-1 is the only 1st drive for the 464
(please add £3 carriage)

FILE TRANSFERS - CPC TO/FROM PCs, PCWs, and OTHERS

2IN1 - £24.95
Moonstone's 2IN1, the Rolls-Royce of CPC/PC file transfer utilities, not only allows the transfer of files by copying to and reading from PC disks but it also allows the same data disk to be used in both machines. FORMAT, COPY, CAT, IDENTIFY FORMAT etc. PC disks on your CPC. Full range of utilities - fully menu driven. When compared to the rest AA said *"Quite simply, it knocks the competition into a cocked waste paper basket".*

MFU - £29.95
Transfers files easily to and from PC's, various CPM format machines (e.g. PCW), BBC's, Osborne and other computers. Its PC transfer is the basic 2IN1 program but without all the facilities. When MFU's PC transfer capability was compared with all the alternatives (except 2IN1), it was judged by AA to be *"head and shoulders above the rest".*

GENERAL
If you just want PC transfers then 2IN1 is by far the best. If you also need transfers to/from the other machines, then MFU is the one to have.

BONZO SUPER MEDDLER........................ £13.75
now includes the BONZO HACKPACK - *free!* The most comprehensive tape to disk utility. Supplied on disk with a huge database of verified transfers. Produces stand-alone transfers.
"A real alternative to a Multiface" - Amstrad Action
"The best tape to disk transfer utility available" - WACCI

BONZO BLITZ £13.75
now includes BONZO'S DOODAH *and* **4 adventure games** - *free!*
Tape to disk transfers. Deals with all forms of Speedlock. Works on all CPCs. Huge database of verified transfers.

BONZO's BIGBATCH...............................£10.00
Fast, flexible DATABASE, superb FOOTBALL POOLS PREDICTOR plus a user-friendly, memory saving SCREEN & SPRITE DESIGNER.

BONZO's FLASHPACK £10.00
Simply too much to list. Please send for details. *"Best all round basic extension program" WACCI*

MAXIDOS (with free PROCOPY) £13.75

THE MOST COMPREHENSIVE & EFFECTIVE GENERAL DISK UTILITY AVAILABLE FOR THE CPC

Fully compatible with RAMDOS, ROMDOS, AMSDOS and CPM formats!
COPY files/disks; **VERIFY** disks; **RESURRECT** erased files; **FAST FORMAT** Amsdos/Ramdos/Romdos; **IDENTIFY** format; **CAT** files (inc. erased ones) optional status/address/length/etc; alter **USER AREAS**, make/unmake system or read only, **DISPLAY** or **PRINT** files...**AND MUCH MORE! BEST SECTOR EDITOR EVER** for the CPC. All standard editing facilities PLUS **FILE MAPPING** to screen or printer, auto step by step movement through a file, string and byte **SEARCH** through file/disk.**FILE ARCHIVER** backs up disks to tape: variable baud rates. **SPEED UP YOUR DISKS!** unique OPTIMISE rearranges your 'crowded' disks, making them load **up to 50% faster.**

OTHER ITEMS

64k DKtronics RAM PACK	38.99
FD1 DISK DRIVE (See below)	59.95
RAMDOS (disk)	24.95
ROMDOS (rom)	29.95
3.5" DISKS (branded bulk)	10 for 7.50
	30 for 20.00
3" DISKS (Amsoft)	10 for 20.00
3.5" DISK BOX lockable, holds 40	7.00
PRINTER LEAD (CPC or PLUS) 6'	8.00

Please add £3 p&p to disk drives
FD1 - state 464, 664, 6128 or 6128 PLUS

32k RAMROM - £13.95!!

The latest addition to our range is a little gem. It is 32k of RAM which can be loaded with 1 or 2 (yes two!) ROM programs. After which it behaves exactly like 1 or 2 ROMs. It plugs onto the computer so a romboard isn't needed. You can select a rom slot for each 16k bank or choose to have both banks on the same slot switching between them at will. Complete with through connector and type-in software, it is now available for an amazing £13.95. Send s.a.e. for fuller details or a cheque to get yours now.

EPROM PROGRAMMER
only £30 inc. p&p

Transfer your favourite programs (Basic/Machine code) onto rom. Programs 8k, 16k; 21v and 12 1/2v eproms. Powerful but easy to use software, rom to rom copy, editing, verification, single byte or block programming. **Blank 16K eproms ... £3.50 each or 5 for £15.00**

464 PLUS/6128 PLUS ADD-ONS

464 1st disk drive (DDI-1)..............................£74.95*
ncludes adaptor - ready to use
FD1 3" B drive (464 & 6128)..........................£59.95*
3.5" B drive (464 & 6128)...............................£79.95*
See above for full details
Printer lead (6ft)..£8.00
Plus to edge adaptor £8.50
Allows CPC add-ons to be used on the PLUS computers
Bonzo Super Medler ....See Above
Bonzo Blitz ....See Above
*Please add £3 p&p on disk drives
PLUS OWNERS WATCH THIS SPACE
We will add more items for your computer as quickly as we test them.

MICROSTYLE

DEPT. ACU, 212 DUDLEY HILL ROAD,
BRADFORD, W. YORKS BD2 3DF.
Tel: 0274 636652 (after 2pm).

Prices include VAT and carriage unless otherwise stated.

BrunWord

BrunWord 6128 £30

BrunWord 6128 is a complete word processing package with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It has its own high speed screen routine, giving it a very fast screen response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with an introductory tutor file.

BrunWord Features

*40, 80 or 128 column display. *Touch typing speed over 200 words/min. *True insert or overwrite. *Justify or unjustify paragraph or whole text. *Justified text has balanced appearance. *Instant word wrap. *Block save, move, copy, insert and delete. *Local editing with word delete/undelete. *Adjustable margins and TABs. *Column/Line/Page display with file name. *True word count. *Find and replace. *Help menus. *Memory filing system. *Single character embedded printer commands (18 with 3 codes and 21 with 10 codes). *Page throw markers. *Multiple copies. *Odd/even page headers/footers with page numbers. *Multi file printing (new page or continuous). *Print specified pages. *Works with any printer. *True display superscript and subscript numbers. *User defined print characters. *Load/Save ASCII files from/to other word processors. *Files can be encrypted. *Maximum file size about 9 pages of text.

BrunSpell Features

*Memory resident. *Checks 4,000 words/min. *30,000 word dictionary. *No American spellings. *Add up to 5,000 of your own words. *Instant lookup. *Helps to find correct spelling. *Automatic correction.

DataFile Features

*Alphabetical, numerical, date sorting. *User defined headings. *Search routine. *Data merging. *Label printing.

Free Booklet

Our 16 page free booklet explains all about our programmes. No need to write a letter, just send a large (A4 size) SAE to 'BrunWord & Printer', Brunning Software, at the address below.

Info-Script £50

Info-Script is a complete data processing package and includes all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of access to both programmes with no disc delays.

Database Features

*Very fast (e.g. takes 1 second to search 2000 addresses for surname 'Smith', initial 'B'). *Specific field search and/or progressive general search. *Instant sort on any field, alphabetical, numerical, date or reverse order (takes no time as the data does not move). *3 sets of user defined headings for each file. *4 markers for instant selection, plus one temporary marker. *Markers can be cleared or inverted and any pair can be added (allows complex searches to be quickly and easily performed). *No setting up of field type or length. *Efficient storage. *Relational records, Parents, Sons and Daughters. *Simple field to field arithmetic with running total. *Direct data merging into BrunWord. *Easy direct label printing, 1 across, 2 across, left of 2 or right of 2. *Single or multi-step.

Data Merging Features

*Simple intelligent system, &N &A &D construct full name, full address and date. *&1 &2 etc specify individual fields. *Insert or fixed format merging. *Automatic justify after merging. *Single step (see before printing) or multi-step. *Stop any time, go to word processor, restart same place. *Merge data from several records for summary, invoice, purchase order etc. *Simple arithmetic. *Running total. *Running VAT total. *Conditional loading. *Conditional printing. *Repeat patterns.

Quotes

"It may seem that I have just written a very long advert for BrunWord 6128 but I haven't, I'm just so impressed." (Phil Craven, ACU Feb 90, page 25).

"One such is Peter Brunning's BrunWord 6128 which is without doubt in my mind, the most powerful and friendly word processor available for the 6128 today, with the possible exception of.... BrunWord Elite!" (David Dorn, ACU July 90, page 43).

BrunWord Elite £55

Most word processors, including BrunWord 6128, are able to drive both daisy wheel and dot matrix printers. This creates the need for a style of printer control that is acceptable to two very different types of printers. BrunWord Elite does not have this restriction as it is specifically written to be used only with dot matrix printers. This gives it a unique advantage over other word processors and as a result it is able to provide much more advanced printer control. This is taken even further, as BrunWord Elite is supplied with an 8 Bit Printer Status Port which allows the programme to continuously monitor the status of the printer, (and provides the missing 8th bit for the original CPC6128). This enables the programme to respond in a more sophisticated way than normally possible. It will wait for ON LINE or <ESC> if the printer is initially OFF or OUT OF PAPER but automatically returns to the editor if the printer is turned OFF.

24 Pin Fonts

Before we designed the fonts for BrunWord Elite, we studied several good magazines. Fineline and Finetype are our variations of the two styles commonly used. Fineline is supplied in 3 sizes and Finetype in 2 sizes. To these we added a display font in computer style and a straightforward 'Heavy' font. Altogether there are 7 fonts supplied, 4 are full 24 pin, 2 are middle size 21 pin and one is a small size 16 pin font.

BrunWord Elite Features

BrunWord Elite has all the features and speed of BrunWord 6128 and BrunSpell, plus:-

*Print in columns *Specify page layout *Use special high quality proportional fonts *Use advanced micro justification with proportional text *Set printer margins independently *Move print head up or down paper, specified in inches from top *Set micro line spacing within text *Print line or box by specifying size and line thickness *Use absolute TABs with proportional text *Download a file directly from disc during printing. *Can be supplied with Info-Script for data merging.

Headline

Headline is a print enhancement utility for use with low cost 9 pin printers. It enables virtually all the features of BrunWord Elite, including the 24 pin fonts, to be used with any 9 pin Epson compatible printer with quadruple graphics (that's all well known modern 9 pin printers). Features include micro justification of proportional text, single, double or eight times height and 1 to 9 times width.

Comparisons

We have tested BrunWord 6128, Protext and Tasword 6128 with the same file of 3366 words.

The first test was to compare the scrolling speed of the screen, using line by line scrolling. This is a vital performance test as the CPC6128 tends to be naturally slow at this task. BrunWord scrolled 40% faster than Protext which in turn scrolled 19% faster than Tasword.

Protext was the fastest to justify but used a simple process that added spaces at the centre of each line, giving the middle of the text a bulging appearance. It did not display as it went along and so needed a separate operation to see the result. BrunWord displayed as it justified and produced the best appearance of all three. BrunWord was 30 times faster than Tasword.

Our simulated typing test achieved 218 words per minute. Both BrunWord and Protext had no trouble at this speed but Tasword was very slow inserting text into the start of a paragraph and could only handle 16 words per minute.

The spelling test checked all 3366 words. BrunSpell took 52 seconds and needed no disc changes. Prospell took 6 min 24 sec and needed 8 disc changes. Taspell took 18 min 46 sec and needed 3 disc changes.

How They Compare

	BrunWord 6128 & BrunSpell	Protext Disc & Prospell	Tasword 6128 & Taspell
Typing into 241 word paragraph Typing into start of text	218 w/m 218 w/m	218 w/m 218 w/m	16 w/m 150 w/m
Scroll to end, line by line	1 min 27 sec	2 min 2 sec	2 min 25 sec
Justify paragraph of 241 words	1 sec	0·2 sec	34 sec
Change appearance to format and Appearance to Format	17 sec	17 sec	53 sec
Spelling check 3366 words Average speed Disc changes	52 sec 3883 w/m None	6 min 24 sec 526 w/m 8	18 min 46 sec 179 w/m 3
Spelling help 'NECESERY' Spelling check word at cursor	1 sec 0·5 sec	12 sec Not possible	Not possible Not possible
Screen format - columns Page boundaries	40, 80, 128 Shown	40 or 80 Not shown	80 only Shown

9 Pin Elite

The Elite system for 9 pin printers consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but only for 9 pin printers). Total price £55.00 inclusive.

9 Pin Elite+Info

The Elite system as above but including Info-Script and a backup disc. Total price £92.00 inclusive.

24 Pin Elite+Info

BrunWord Elite, BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90.00 inc.

Send cheque/PO/Access number/Visa number to:



Brunning Software
138 The Street,
Little Clacton, Essex, CO16 9LS
Telephone (0255) 862308

BrunWord 6128 with BrunSpell & DataFile. . . £30.00
Info-Script with BrunWord 6128 & BrunSpell. . £50.00
9 Pin BrunWord Elite £55.00
9 Pin BrunWord Elite with Info-Script. £92.00
24 Pin BrunWord Elite with Info-Script. £90.00
100 Letters (needs Info-Script). £15.00

Supplied on 3in Disc for CPC6128 or CPC6128 Plus.
You must state which computer.

All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

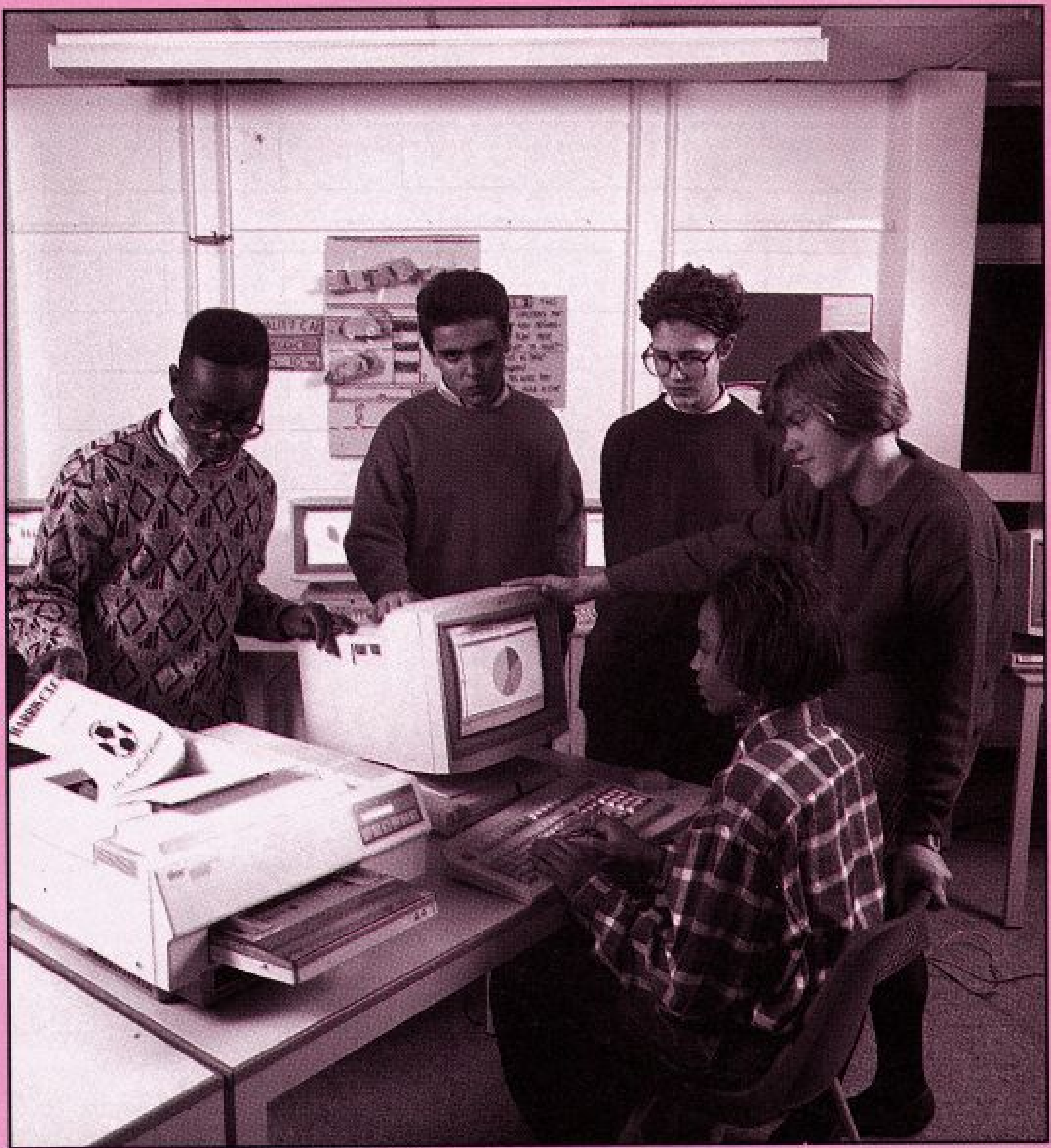
Published by MSM Ltd.
A division of MCPC Ltd.
Panini House 116-120
Goswell Road,
London EC1.
Editorial enquiries:
Tel: 0726 850539
All other enquiries:
Tel: 071 490 7161

Subscriptions
LAZAHOLD
PO Box 10, Roper Street,
Pallion Ind. Est.,
Sunderland SR4 6SN.
Tel: 091 510 2290.
Yearly rates:
UK £17.40
Europe £31.00
Rest of the World £43.00
Distribution
IPC Marketforce Tel: 071 261 5000
Colour and Mono Origination
Ebony
Heathlands Industrial Estate
Liskeard, Cornwall
Tel: 0579 46880
Published on 1st Thursday of month preceeding cover date

REGULARS

FEATURES

STAR AWARDS



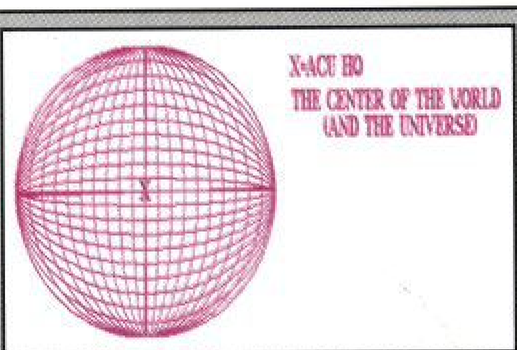
Over six thousand schools have recently been contacted to take part in the first stage of a new annual environmental competition to promote awareness amongst 16-18 year olds of the world around us.

Sponsored by Star Micronics, the youngsters will tackle projects on Global Warming and World Resource Use amongst other green topics, with oodles of computing equipment being given away to the regional winners.

Pretty soon, those winners will be taking on teams from all over the world to find the outright winner of the World and our Future award.

So, let's hear a rousing cheer of encouragement for those schools taking part and, if any of those regional winners are out there, let us know how your trials are going on the way to the final.

If you want to know if there's still a chance of entering, get in touch with Star at The World and our Future, Byron House, Wallingford Road, Uxbridge, Middx. UB8 2RW and go gunning for the prizes. Well done Star.



X MARKS THE SPOT

Remember that little compo we ran alongside the 3D World 10-liner proggy by Alan Scully? Well, here's the first entry we received, from Colin Sandiford of Leyton in London, who correctly placed the ACU team slap bang in the centre of the universe, though what they're doing there is anybody's guess.

Anyway, well done Colin, you should find a little goodie on it's way to you very soon for your prompt reply. Thanks to everyone else who wrote in, but unfortunately, there could only be one winner.

FIVE ALIVE!

If you haven't read any of the fabulous Famous Five adventures by Enid Blyton, then you simply haven't lived. If that's the case, then the chance to rectify that unfortunate situation is coming up very shortly with the release of the Famous Five computer game, based upon the books, from Enigma.

All of your favourite characters will spring to life on the screen, with more adventures to be had than you can handle without lashings of Ginger Beer to keep you going.

To coincide with the release, Engima are offering a superb collection of prizes to those of you who can answer the simple questions below. For the lucky winner, there's a complete set of Enid Blyton's Famous Five epics, with 10 fantastic copies of the computer game going to the runners-up.

1. What is the name of the dog in the Famous Five?
2. Which was the first of the Famous Five adventures?
3. Who did the Five go to stay with in the summer holidays?

If you think you know the answers, then you could be in for the excellent prizes, but don't forget to state which format you want the game on with your entry.

When you've done, send your entry to ACU Famous Five Quiz, c/o Enigma Variations, 13 North Park Road, Harrogate HG1 5PD and then keep your eyes glued to the mailbox to see if you've won.

SHOPPING DATES

Here's an important date to stick in your diary if you want to keep up to date with the latest on the computer scene.

On May 10-12, the Spring Computer Shopper Show opens its doors at the Great Hall, Alexandra Palace, Wood Green in London.

Tickets are on sale at £6 for adults and £4 for children, though if you order in advance, you'll get a discount.

Special family tickets are also available for this ever-popular show for all the latest developments in computer software, hardware and peripherals.

DOUBLE CROSS

Here's a little something from Wiltshire based Parimgold that'll put an end to many a programmer's headache.

Kwikref/x is a low cost and easy to use cross-referencing system enabling users to pinpoint programming errors swiftly, compiling a sequenced list of variables and line numbers to the screen in a matter of seconds.

Value changes are listed and further tables show lines in which other lines are referred to, providing a total cross-referencing grid that should sort out most, if not all teething problems on new programs.



For just £12.95, Kwikref/x is available from Parimgold Ltd., 45 Newtown, Hullavington, Wilts., SN14 6EL. Contact them now on 0666 837215 for more information.

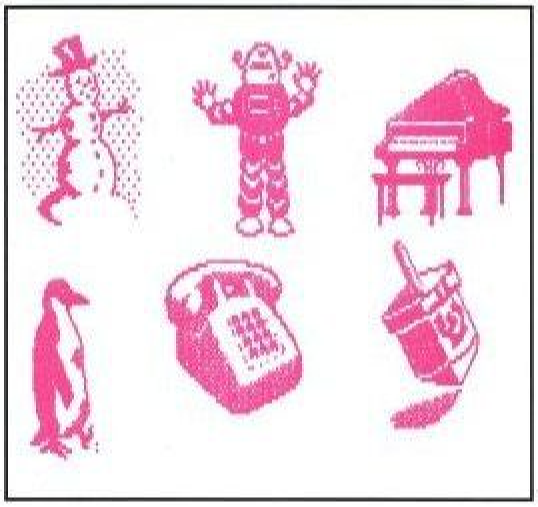
MORE CLIPPINGS

SD Microsystems are proud to announce a brand new offer to CPC freaks. Yes, more fantastic clip-art at knock down prices. Using a special process, special picture discs including over 100 different drawings can be used with SD Microsystems' Page Publisher DPT package.

The art is taken from the public domain and the excellent cost of £12.50 per disc is set to cover conversion and postage costs only.

With the new Mouse Update, enabling Page Publisher to be used with the AMX Mouse, now available for just £5, prettying up your publishing couldn't be much simpler.

To get your hands on the clip-art or the mouse update, contact SD Microsystems at PO Box 24, Hitchin, Herts, or ring them on 0462 422897.



ALL CHANGE

Ever get tired of lugging your hand-held joystick around? Or do you wish you could grab your joystick off the table and get mobile? With the latest development from Gwent based KPK, you can now get the best of both worlds with the Converta, a joystick aimed for use both as a hand-held, or table top, use.

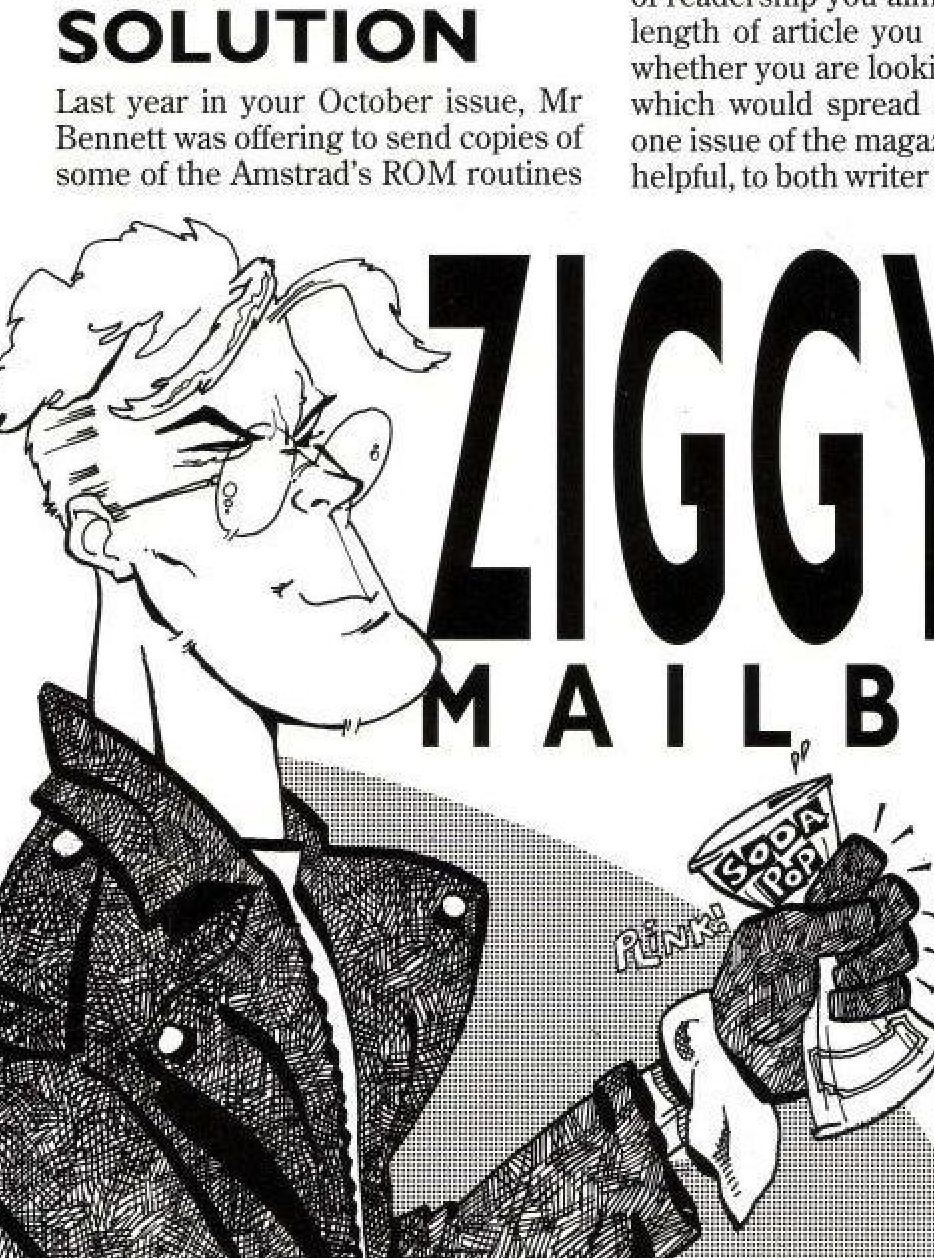


Using cleverly hinged doors on the underside of the device, the Converta is easily swapped around to provide comfortable zapping from any position.

On top of that, the microswitches inside are designed to be self-cleaning, ensuring positive action at all times. With the easily accessible handle mounted fire buttons, the Converta is well worth a try out on your next visit to the shops and, at under £10 a shot it looks like excellent value for money.



ZIGGY'S MAILBOX



GREEN SCENE

I am writing on behalf of the Scalby School environmental group 'Earthsavers', to ask if your mega mag could use recycled paper for all the pages, and then print on at least one page that the mag is printed on recycled paper.

Stephen Patterson, Burniston, N.Yorks.

Ziggy: Well Stephen, the ACU team wishes it could use recycled paper, though at the moment, much of the paper that is recycled is too fragile for magazine use and tears too easily, while the more durable stuff is quite expensive.

Indeed, even many of the nature magazines haven't been able to use recycled paper as yet but, with technology advancing at the rate it does, you can be sure that when it becomes viable, both financially and in terms of quality, ACU will be fighting to be one of the first to become fully environmentally friendly.

FIRM SOLUTION

Last year in your October issue, Mr Bennett was offering to send copies of some of the Amstrad's ROM routines to people who requested them. In your reply, you said that ACU was working on a permanent solution to the lack of Firmware manuals.

May I ask if this is still going to happen and, if so, when it will be released? Also, what sort of price would it sell for?

I ask all this as many aspiring machine code programmers, like myself, are finding themselves grinding to a halt with no Firmware manuals to tell them what they desperately need.

James Cundle, Wadhurst, East Sussex.

Ziggy: ACU is indeed still working to rerelease the old Firmware Guide for programmers, but negotiations are still taking place as to the minutiae. In the meantime, why not hunt through our Bits 'n' Pieces section, to see if you can't find one there.

DEAR ED

During the reign of some of your predecessors, it would seem that the Amstrad Computer User had no 'writers' guide' available. If you now have one, please let me have a copy.

What I would like to know is the kind of readership you aim at; what sort of length of article you are looking for; whether you are looking for an article which would spread over more than one issue of the magazine. It would be helpful, to both writer and editor, if the guide gave information of the preferred physical aspects of the submitted material: paper size, type size, layout of the text, presentation of any diagrams or computer programs etc. Also of great interest would be payment rates.

Thomas Betts, West Wickham, Kent.

Ziggy: First and foremost, ACU's readership varies greatly from youngsters to O.A.P.'s, from beginners to experienced programmers, so as far as a writer's guide on that count goes, feel free to send in anything that you think will be of interest to CPC freaks, whether it's serious or lighthearted, just as long as it's informative.

Any format of copy, hard or on disk, can be accepted, although double line spacing on hard copy is preferable, and payment rates are usually negotiated per page or per 1,000 words, depending on space used for diagrams or listings. Fair enough?

BOOK BLUES

As a regular reader of your magazine, I would appreciate if you could let me know how I can obtain a book which will explain in simple terms the Amstrad CPC6128.

At present, I can only operate the computer with the aid of Mini Office 2 and would like to be able to use CP/M and understand how to use other software.

My computer is a few years old but works perfectly. I have the Amstrad User instructions but have not had the time to go through the whole book, which I find difficult to understand.

Peter Brinson, Brockley Rise, London.

Ziggy: Here are a couple to try out: Introducing CP/M, which has the ISBN number 0-00-383309-7, Your First Amstrad Program, by Rodney Zaks: ISBN 0-94788-800-4 and the Amstrad Operator's Guidebook: ISBN 0-434-90-321-3.

If you can't find these in your local bookshop, get along to the next All Formats Show at the New Horticultural Halls in Victoria, or the Spring Computer Shopper Show at Wood Green (see news pages for details), where you should find these and other books specially written to help new users get to grips with their machines.

DISCOUNT SOFTWARE

from M.J.C. SUPPLIES

STOP PRESS SOFTWARE

A superb page layout program allowing text and graphics to be printed on the same page. Contains a number of text fonts & clip art. Create leaflets, posters etc.

ONLY 34.95

STOP PRESS & AMX MOUSE

As above but is supplied complete with the AMX mouse making the program a lot quicker and easier to use.

ONLY 64.95

EXTRA! EXTRA!

Two discs of extra fonts and clip art for use with Stop Press.

ONLY 14.95

★★★ SPECIAL OFFER ★★★

STOP PRESS SOFTWARE
AND
EXTRA! EXTRA!
ONLY 44.95
OR
STOP PRESS & AMX MOUSE
AND
EXTRA! EXTRA!
ONLY 74.95

AMSTRAD 6128 PLUS COMPUTERS

Amstrads replacement for the CPC 6128 is now available.

with Colour Monitor	**£369.95**
with Mono Monitor	**£309.95**

RIBBONS

Printer	Quantity 1	2	5
DMP 2000-3250	3.00	5.50	12.00
Panasonic KXP1081	3.95	7.00	15.00
Citizen 120D	3.95	7.00	15.00
Star LC-10 Black	3.95	7.00	15.00
Star LC24-10	4.95	9.00	18.00
Panasonic KXP 1124	5.95	11.00	
Star LC-10 Colour	5.95	11.00	
Star LC200 Mono	5.50	10.00	
Star LC200 Colour	10.95	19.95	
Star LC24-200 Mono	4.95	9.00	
Heat Transfer Ribbons			
Citizen 120-D	10.95	19.95	
Panasonic KXP 1081	10.95	19.95	
Star LC-10 Black	13.95	10.95	
Star LC-10 Colour	16.95	29.95	

AMSOFT CF2 DISCS

5 for £11.00
10 for £19.95
20 for £36.00

DISC SERIOUS

Protext **17.95**
Prospell 16.95
Promerge 16.95
Tasword 6128 .... **23.95**
Tasword 464-disc (464/664) 23.95
Taspell 14.95
Tasprint 11.95
Tascopy 11.95
Tasdiary 11.95
TasSign (6128) 23.95
Qualitas Plus v2 *(not 6128+)* **14.95**
Qualitas Font Library 11.95
Qualitas CPM+ disc 8.95
Masterfile 3 *(Database)* **29.95**
Mastercalc 128 *(Spreadsheet)* 25.95
Matrix *(Spreadsheet)* 29.95
Stockmarket *(share analysis)* 25.95
Money Manager *(home accounts)* **21.95**
X-Press v2.0 .... 18.95
Sprites Alive! 17.95
Sprites Alive! Compiler 22.95
Power Basic **28.95**
Maxam assembler 18.95
Mini Office 2 .... 13.95
Advanced Art Studio 19.95
ColourDump 2 .... **12.95**

DISC GAMES

MJC SPECIAL
FISTS OF FURY
RRP £24.99 Our Price £16.95
Offer runs from 1/4/91 to 30/4/91

Back to the Future 2 .... 10.95
Chips Challenge 11.95
Edition 1 Compilation 17.95
Hollywood Collection 14.95
Kick Off 2 .... 10.95
Lords of Chaos 10.95
Lotus Esprit TurboChallenge 10.95
Monty Pythons Flying Circus 10.95
Nightbreed Arcade 11.95
Puzznic 11.95
Rick Dangerous 2 .... 10.95
Rainbow Islands 10.95
Shadow of the Beast 12.95
Sim City **(NOT 6128 PLUS)** ... CALL
T.N.T. Compilation 17.95
TEENAGE MUTANT HERO TURTLES 12.95
Total Recall 11.95
Wheels of Fire compilation 17.95

CASSETTE BASED

Fun School 1 (2-5) 4.95
Fun School 1 (5-7) 4.95
Fun School 1 (8-12) 4.95
Mini office 2 .... 9.95
Maxam 464 .... 15.95
Protext 464 .... 15.95
Tasword 464 .... 15.95
French Mistress 12.95
German Master 12.95
Spanish Tutor 12.95
Answerback Junior Quiz 7.95

EDUCATIONAL

Learn To Read with Prof (4-9) 14.95
LCL Primary Maths (3-12) 19.95
LCL Micro Maths (11-GCSE) 19.95
LCL Micro English (8-GCSE) 19.95
LCL mega Maths (A-level) 19.95
Answerback Junior Quiz 10.95
Factfiles *(require Answerback Quiz)*
Arithmetic (6 to 11 years) 7.95
Spelling (6 to 11 years) 7.95
Sports (12 to adult) 7.95

Fun School 1 *10 programs per disc*
For 2 to 5 years 6.95
For 5 to 7 years 6.95
For 8 to 12 years 6.95
Fun School 2 *8 programs per disc*
For 2 to 6 years 8.95
For 6 to 8 years 8.95
For 8 to 12 years 8.95
Fun School 3 *6 programs per disc*
For 2 to 5 years 11.95
For 5 to 7 years 11.95

French Mistress *(12 to adult)* 15.95
German Master 15.95
Spanish Tutor 15.95
Italian Tutor 15.95

ACCESSORIES

Mastering Machine Code Book 8.95
Programming the Z80 book ... 23.95
DKT 64K Memory Expansion 45.95
Multiface 2 Plus 39.95
KDS 8 bit Printer Port 18.95
CPC-Centronics printer Lead ... 9.95
464+, 6128+ Parallel Print Lead 6.95
464 Keyboard-Monitor Ext Lead 6.95
6128 Keyboard-Monitor Ext Lead 7.95
FD1 Disc Drive Lead (664/6128) 7.95
Monitor & Keyboard Dust Covers 7.95
(state Colour/Mono & 464/6128/plus)
3" disc drive head cleaner 6.95
Quickjoy 2 Turbo Joystick 9.95
Cruiser joystick 9.95
Competition Pro 5000 Joystick 13.95
AMX mouse & interface 34.95
Advanced Art Studio & Mouse 49.95
AMX Art software & Mouse 59.95

CPM BASED

Protext CPM *(inc Spell & Merge)* 39.95
At Last Plus 24.95

SuperCalc 2, *our price* ***£39.95***

Arnor C Compiler 35.95
Hisoft C Compiler 35.95
Maxam 2 .... 35.95
Hisoft Devpac 80 version 2 .... 35.95
Nevada Fortran compiler 35.95
Nevada Cobol compiler 35.95
Hisoft Pascal 80 .... 35.95
Iankey Crash Course 18.95
Iankey Two Finger Typing 18.95

ALL ABOVE PRICES INCLUDE VAT, POSTAGE & PACKING IN THE U.K.
THE ABOVE SOFTWARE IS ONLY FOR THE AMSTRAD CPC RANGE

Quali Pack V.2

The Print Enhancement Package
Qualitas Plus V.2
KDS 8 Bit Printer Port
R.R.P £36.90
Package Price £31.95

Quali Pack Extra V.2

Qualitas Plus V.2
KDS 8- bit printer port
Qualitas font library
RRP £51.85 Our Price £41.50

PRINT COLOUR GRAPHICS!

*At last it is possible to get colour screen dumps from a 6128! **Colourdump 2** is available exclusively from M.J.C. Supplies. Will take a standard screen file from the Advanced Art Studio or created with AMX Art, and Prints out in full colour on a Star LC10 or LC200 colour printer. Also works on Epson compatibles (inc. DMP 2000/2160) with coloured ribbons.*

Colour Dump 2 £12.95
Advanced Art Studio £19.95
Star LC-200 printer £219.95

PRINTERS

All prices include cable, ribbon, VAT, and postage and packing. Courier service available, add £5.
FEEL FREE TO CALL FOR ADVICE.

CITIZEN 120-D

A cheap, Epson FX compatible, with a range of text styles and sizes in draft mode, limited range in Near Letter Quality.
£139.95

PANASONIC KXP - 1081

Well built and very reliable, offers all the sizes and effects of the Citizen 120-D, but offers NLQ in all combinations.
£159.95

STAR LC10 MARK 1

On par with the Panasonic for build speed and NLQ combinations, but offers 4 different NLQ styles and double height effect. Great value.
£169.95

PANASONIC KXP-1180

Offers 4 NLQ fonts, and fast printing. Very good quality text for a 9 pin printer.
£179.95

STAR LC-10 Mark 2

Identical to the Mark 1, but 25% faster.
£189.95

STAR LC 200

The latest colour printer from Star. Not only very fast, but offers new paper handling features. Best value for money.
£219.95

STAR LC 24-200

The replacement for the popular LC 24-10, with the same 5 letter quality fonts, shadow and out-line effects, and again, much quicker and with improved paper handling. Please call for advice if you require graphic output.
£269.95

PANASONIC KXP-1124

Excellent text quality, build quality, paper handling and control panel. Please call for advice if you require graphic output.
£259.95

BARCLAYCARD VISA

EUROCARD

PRICES INCLUDE VAT & POSTAGE TO THE U.K.

Education, Local Authority and Government orders welcomed.
Overseas customers also welcome, please call or write for quotations.
All goods subject to availability, all prices subject to change without notice. E&OE.

CALLERS WELCOME 9.30 TO 5.00 SIX DAYS

Access

MasterCard.

MJC SUPPLIES (ACU)

2, THE ARCHES, ICKNIELD WAY, LETCHWORTH, HERTS, SG6 1UJ
TELEPHONE ORDERS AND ENQUIRIES
LETCHWORTH (0462) 48.11.66 (6 lines)

FAX: 0462-670301

PROPRIETOR: MJ COOPER

O.J. SOFTWARE

FAST FRIENDLY SERVICE

ADVENTURE

	CASS	DISC
Acheton		£11.95
Avon (With Murdac)		£11.95
Bards Tale Hint Book		£4.95
Bloodwych	£8.50	£11.95
Countdown To Doom		£11.95
Dragons Of Flame	£11.95	£15.95
Giant Killer (Maths Adv)		£11.95
Heroes Of The Lance	£11.95	£15.95
Kingdom Of Hamil		£11.95
Lancelot	£11.95	£15.95
Last Days Of Doom		£15.95
Philosophers Quest		£11.95
Pirates (6128 only)		£15.95
Return To Doom		£11.95
Time & Magic	£11.95	£11.95
Tolkein Trilogy	£10.95	£14.95

ARCADE

	CASS	DISC
Back To Future II	£8.50	£11.95
Castle Master	£8.50	£11.95
Chips Challenge	£9.50	£12.95
Cyberball	£8.50	£11.95
Deliverance	£8.50	£11.95
Dragon Breed	£8.50	£11.95
Dragon Ninja		£11.95
E. Motion	£9.50	£11.95
E. SWAT	£9.50	.....
Ed The Duck	£8.50	£11.95
Emlyn Hughes Soccer	£8.50	£11.95
Fighting Soccer	£8.50	£11.95
Golden Axe	£9.50	£11.95
Grand Prix Circuit	£9.50	£13.95
Gremlins II	£8.50	.....
Gunboat		£13.95
Heavy Metal	£8.50	£11.95
Hostages	£8.50	£11.95
Ivan Stewart Off Rd	£8.50	£11.95
Light Corridor	£9.50	£12.95
Line Of Fire	£9.50	.....
Lords Of Chaos	£8.50	£11.95
Lotus Esprit Turbo	£9.50	£12.95
Midnight Resistance	£8.50	£11.95
Monty Python	£8.50	£11.95
New Zealand Story	£8.50	£11.95
Nightbreed	£9.50	£11.95
Puznic	£9.50	£12.95
Rainbow Islands	£8.50	£11.95
Rick Dangerous II	£8.50	£11.95
S.T.U.N. Runner	£8.50	£11.95
ST. Dragon	£8.50	£11.95
Satan	£8.50	£11.95
Shadow Of The Beast	£10.95	£12.95
Sim City	£10.95	£14.95
Snowstrike	£8.50	£11.95
Spy Who Loved Me	£8.50	£11.95
Strider II	£9.50	£12.95
Super Cars	£9.50	£11.95
Teenage Hero Turtles	£10.95	£13.95
Total Recall	£9.50	£12.95
Turrican	£8.50	£11.95
U.N. Squadron	£9.50	.....
X-Out	£8.50	£11.95

COMPILATIONS

	CASS	DISC
10 PACK: Skate Crazy, HATE, Street Fighter, G.L. Hot Shot etc	£10.95	£14.95
CHALLENGERS: St. Car, F. Bomber, ProTennis, Kick Off, Sup Ski	£11.95	.....
DIZZY COLL: Dizzy, FFood, FWDizzy, TIDizzy, Magicland Dizzy	£8.50	.....
EDITION 1: Double Dragon, Xenon, Silkworm, Gemini Wing	£11.95	£20.95
FIST OF FURY: Double Dragon II, Ninja Warr, Shinobi, Dyn Dux	£11.95	£20.95
HEROES: Licence To Kill, Barbarian II, Running Man, Star Wars	£11.95	£15.95
HOLLYWOOD COLL: Batman Movie, Robocop, GBusters II, I. JonesLC	£11.95	£15.95
MASTER MIX: S.Wonderboy, D.Dux, T.Outrun, CR.Down, ThBlade	£12.95	£15.95
PLATINUM: Gh&Ghosts, Strider, Bi.Tiger, F.Words, LED Storm	£12.95	£15.95
SOCCER MANIA: FMngr, WC, Gazza S.Socc, FMngr II, Microprose Soc	£11.95	£13.95
TNT: Hard Drivin', Toobin, A.P.B., Dragon Spirit, Xybots	£11.95	£20.95
TOLKEIN TRILOGY: The Hobbit, Lord Of Rings, Shaows Mordor	£10.95	£14.95
WHEELS OF FIRE: T.Outrun, Chase HQ, Powerdrift, Hard Drivin'	£11.95	£20.95

STRATEGY/SIMULATION

	CASS	DISC
Airborne Ranger	£11.95	£15.95
Ancient Battles	£11.95	£11.95
Battle Of The Bulge	£10.95	£11.95
Blockbusters	£6.95	.....
Colossus 4.0 Bridge	£9.95	£11.95
Colossus 4.0 Chess	£8.50	£11.95
Crete 1941	£10.95	£11.95
Desert Rats		£11.95
Emlyn Hughes Soccer	£8.50	£11.95
F15 Strike Eagle	£8.50	£11.95
Football Director II		£15.95
Grand Prix	£8.50	.....
Gunboat 6128		£13.95
Gunship	£11.95	£15.95
Int 3D Tennis	£8.50	£11.95
Italy 1990 Winners	£8.50	.....
Jack Nicklaus Golf	£8.50	£13.95
Kick Off II	£8.50	£11.95
Manchester United	£8.50	£11.95
Mindstretchers	£15.95	£15.95
Pirates (6128 only)		£15.95
Silent Service	£8.50	£11.95
Tie Break	£8.50	£11.95
Trevor Brooking W.Cup	£8.50	£11.95
Trivial Pursuits	£11.95	£15.95
Vulcan (Tunisian Campaign)		£11.95
Yes Chancellor		£11.95

BUSINESS/UTILITIES

	CASS	DISC
AMX Mouse & Art	£62.95	£62.95
AMX Mouse & Stop Press 6128		£71.95
Advanced Art Studio		£19.95
Extra Extra (Fonts/Clip Art)		£20.95
Crash Course Typing (6128)		£20.95
Mastercalc 128 (6128)		£27.95
Masterfile III (6128)		£29.95
Maxam (Ass/Disass)	£16.95	£21.95
Mini Office II	£11.95	£15.95
Money Manager (CPC+PCW)		£24.95
Promerge		£20.95
Prospell		£20.95
Protext	£16.95	£21.95
Stop Press (6128)		£39.95
Tas-Sign (6128+PCW)		£24.95
Tas-Spell		£15.95
Tascopy		£11.95
Tasprint		£11.95
Tasword 464	£20.95	£24.95
Tasword 6128		£24.95

BUDGET

	CASS
Chuckie Egg 1	£2.75
Chuckie Egg 2	£2.75
Quattro Adventure	£2.75
Quattro Arcade	£2.75
Quattro Combat	£2.75
Quattro Sports	£2.75
Quattro Super Hits	£2.75
Quattro Power	£2.75
Afterburner	£2.75
Double Dragon	£2.75
Fighter Pilot	£2.75
Tomahawk	£2.75
Barbarian II	£3.75
California Games	£3.75
The Games Winter Edition	£3.75
Tiger Road	£3.75

JOYSTICKS

AMSTRAD JY2	£7.95
CHEETAH 125+	£7.95
CHEETAH MACH 1	£10.95
CHEETAH STARPROBE	£13.95
COMPETITION PRO 5000 Black	£14.95
COMPETITION PRO 5000 Clear	£14.95
COMPETITION PRO GLO GREEN	£14.95
COMPETITION PRO GLO RED	£14.95
CRUSIER Black	£9.95
CRUISER Multicolour	£9.95
CRUISER Clear	£11.95
CRYSTAL TURBO	£14.95
KONIX NAVIGATOR	£12.95
KONIX SPEEDKING	£10.95
MICROBLASTER	£11.95
MICROBLASTER Clear	£13.95
QUICKJOY JETFIGHTER	£14.95
QUICKJOY SUPERBOARD	£14.95
QUICKSHOT APACHE 1	£7.95
QUICKSHOT MAVERICK 1	£14.95
QUICKSHOT TURBO III	£9.95
RAM DELTA 2000	£9.95
ZIPSTICK SUPER PRO	£14.95

EDUCATION PRE-SCHOOL/EARLY LEARNING

	AGE	CASS	DISC
1st Steps Mr Men	4-8	£9.95	.....
Caesar's Travels	3-9	£9.95	.....
Here there Mr Men	4.8	£9.95	.....

PRIMARY WORD/LETTER SKILLS

	AGE	CASS	DISC
Better Spelling	9+	£8.95	£12.95
Early Words	3-6	£8.95	£13.95
Fun With Words	7-	£8.50	.....
Happy Letters	3-6	£8.50	£11.95
Happy Writing	3-6	£8.50	£11.95
Play & Read Levl	4+	£15.95	£21.95
Read Right Away 1	5-8	£7.95	£11.95
Read Right Away2	6-9	£7.95	£11.95
Read Right Away3	7-10	£7.95	£11.95
Wordhang	5+	£8.50	£11.95

PRIMARY MATHS/NUMBER SKILLS

	AGE	CASS	DISC
Early Maths	4-8	£8.95	£13.95
Fun With Numbers	7-	£8.50	.....
Happy Numbers	3-5	£8.50	£11.95
Magic Maths	4-8	£8.95	£12.95
Map Rally	7-13	£8.50	£11.95
Maths Mania	8-12	£8.95	£12.95
Primary Maths	3-12	£24.95	£24.95
Timeman 1	4-9	£8.50	£11.95
Timeman 2	4-10	£8.50	£11.95

MATHEMATICS

	AGE	CASS	DISC
Better Maths	12-16	£8.95	£12.95
Micro Maths	9-Ad	£24.95	£24.95
Mega Maths	15+	£24.95	£24.95

CHEMISTRY/PHYSICS/BIOLOGY

	AGE	CASS	DISC
Biology 1	12-16	£8.95	£12.95
Chemistry 1	12-16	£8.95	£12.95
Physics 1	12-16	£8.95	£12.95

LANGUAGES

	AGE	CASS	DISC
French Mistress	11+	£13.95	£16.95
German Master	11+	£13.95	£16.95
Italian Tutor	11+	£13.95	£16.95
Spanish Tutor	11+	£13.95	£16.95
Micro English	8-Ad	£24.95	£24.95

EDUCATIONAL QUIZ

	AGE	CASS	DISC
Answer Back Jnr	6-11	£8.50	£11.95

ADDITIONAL QUESTION PACK

	AGE	CASS	DISC
20th Cen History	12+	£4.50	£7.50
Arithmetic	6-11	£4.50	£7.50
English Words	12+	£4.50	£7.50
First Aid	12+	£4.50	£7.50
General Science	14+	£4.50	£7.50
Know England	12+	£4.50	£7.50
Natural History	10+	£4.50	£7.50
Spelling	6-11	£4.50	£7.50

GENERAL

	AGE	CASS	DISC
Funschool II	6-	£8.50	£10.95
Funschool II	6-8	£8.50	£10.95
Funschool II	8+	£8.50	£10.95
Funschool III	5-	£10.95	£13.95
Funschool III	5-7	£10.95	£13.95
Funschool III	7+	£10.95	£13.95
Grannys Garden	6-10	6128	£16.95
Dragon World	6-10	6128	£20.95
Giant Killer	9-14		£15.95
Three Bears	5+	61228	£12.95

ACCESSORIES

AMSTRAD DDII Disc Drive	£159.95
AMSTRAD FD1 2nd Drive	£99.95
FD1 Cable For 664/6128	£7.95
AMSTRAD MP2 Modulator	£28.95
AMSOFT DISCS	£2.65 Ea 5 For £12.50 10 For £23.95
AMX Mouse & Art	£62.95
AMX Mouse & Stop Press	£71.95
Cassette Head Alignment Kit	£7.50
Cassette Lead	£3.95
Cassette Recorder	£20.95
Cassette Recorder + Lead	£23.95
Cover Set 2pc 464/128 C/M	£7.95
Cover DMP2/3000, LC10	£4.95
Cover DDII/FD1 Disc Drive	£2.95
Disc Box 80 3.5" 40+ 3"	£9.95
Disc Box AMS30L For 3" Discs	£12.95
Disc Drive Cleaner 3"	£5.95
Genius Mouse+Adv Art 6128	£49.95
Grippa Copy Holder	£9.95
Joystick Splitter	£7.95
Ext. Leads 464 £6.95 6128	£7.95
Labels 1000 1 Across Tractor	£6.95
Memory Expansion 64K 464	£44.95
Mini Vacuum/Blower	£8.95
Mouse Mat	£5.95
Multiface II+	£46.95
PRINTER Citizen Swift 9	£219.95
PRINTER Star LC10	£179.95
PRINTER Star LC200 Colour	£229.95
All printers Supplied With Cable	
Printer Cable CPC 1 Mtr	£8.95
1.5 Mtr £9.95 2Mtr	£10.95
Printer Cable CPC+ 1Mtr	£7.95
RIBBONS DMP 2/3000 Or LC10	£3.75
2 For £7.00 5 For £16.25 10	£30.00
RIBBON REFRESH	
SeAl N Type 464/6128	£8.95
Surge Protection Plug	£12.95
VIDEO LEAD (Titles etc)	£795

CARTRIDGES 464/6128+/GX4000

Barbarian II	£21.95
Batman The Movie	£21.95
Crazy Cars II	£24.95
Fire & Forget II	£24.95
Klax	£21.95
Operation Thunderbolt	£21.95
Robocop II	£21.95
Switchblade	£21.95
World Of Sports	£21.95

NEW GAMES AVAILABLE ON DAY OF RELEASE: PLEASE PHONE FOR AVAILABILITY

TELEPHONE ORDERS (0257) 421915 Mon - Fri 9.00-17.30 Sat 9.00-12-30 (Answerphone other times)

Qty	Description	Price

Total .... £

Name: ....

Address: ....

....

....

....

Tel No: ....

Date: ....

Signed: ....

PRICES INCLUDE POST & PACKING IN U.K. PLEASE MAKE CHEQUES/PO'S PAYABLE TO **O.J. SOFTWARE**

I enclose CH/PO for £ Or debit ACCESS/VISA No. ________________ Exp ________

O.J. SOFTWARE, 273 MOSSY LEA ROAD, WRIGHTINGTON, NR WIGAN, LANCS. WN6 9RN

MOST ORDERS ARE DESPATCHED BY RETURN (OUT OF STOCK ITEMS NORMALLY WITHIN ONE WEEK) OVERSEAS ORDERS: SOFTWARE ITEMS OVER £10.00 Ea POST FREE, OTHERS ADD £1.00 Ea.

★ SPECIAL OFFER ★ ALL SOFTWARE ORDERS OVER £35 RECEIVE A FREE CALCULATOR

COMPETITION



We've got a real wacky giveaway this month to coincide with our review of Audiogenic's epic Exterminator. Yes, you've guessed it, your very own set of controllable rubber exterminator hands. Switch them on and watch them wriggle and writhe to your command. Quite gruesome really. To get your hands (if you'll pardon the pun) on this excellent first prize, just answer the simple questions below and don't forget to state which format you want the game on with your entry.

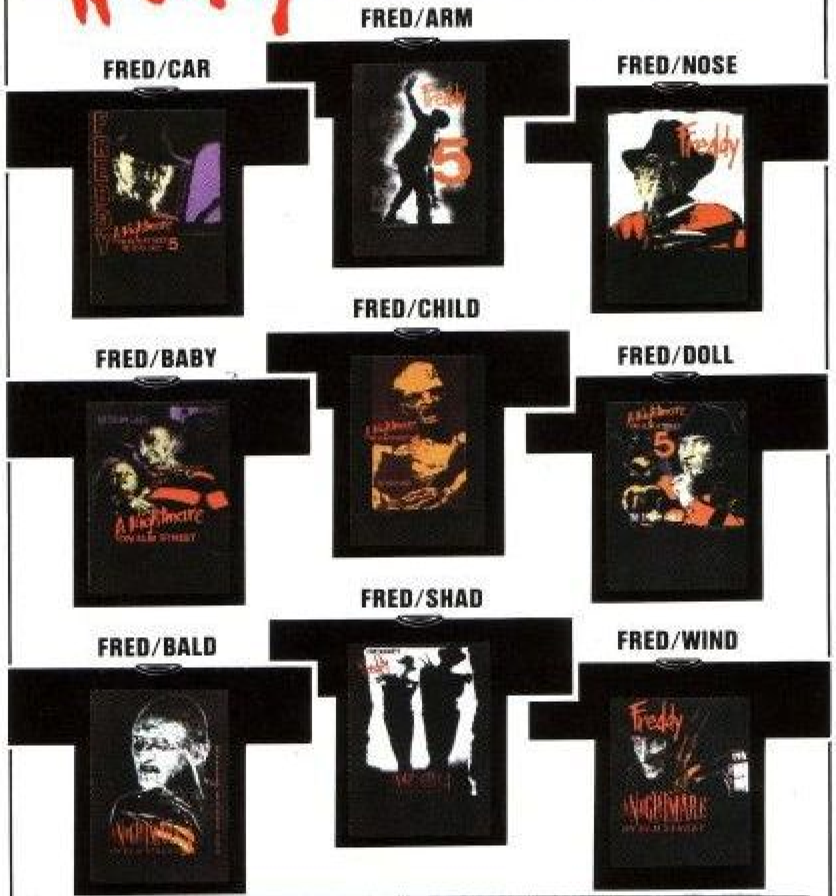
For the lucky runners-up, there are 10 superb copies of the Emlyn Hughes Arcade Quiz up for grabs, so get those entries in quick to grab the goodies.

1. Which rodent was responsible for bringing the Plague to Britain?
2. Which fabled character led the rats out of Hamelin?
3. When did Liverpool last win the FA Cup???

Send your entries to:
ACU Ratcatcher Competition, MSM Ltd., 116-120 Goswell Road, London EC1V 7QD.
The editor's decision is final.

DARKSIDE/ACU SPECIAL OFFER

Freddy™ MERCHANDISE



100% COTTON BLACK T's L & XL PRICE £8.99 inc. P&P



STOP PRESS. . LARGE, HEAVY SILVER & BRONZE FINISH CLAW BUCKLE £39.99 inc. P&P

QUALITY HEAVY METAL SILVER OR BRONZE FINISH JEWELLERY

PLEASE DEBIT MY ACCESS/VISA No:

PLEASE ALLOW 28 DAYS FOR DELIVERY

	DESCRIPTION	SIZE	QTY
EXPIRY DATE / /			
SIGNATURE			
NAME (Block capitals)			
ADDRESS			
POST CODE			
DAYTIME TEL No.	TOTAL AMOUNT £		

CHEQUES OR POSTAL ORDERS MADE PAYABLE TO: **GOLD DISTRIBUTION**
COMPLETE ORDER FORM AND SEND TO:
GOLD DISTRIBUTION, GOLD HOUSE, 69 FLEMPTON ROAD, LEYTON, LONDON E10 7NL
OR ACCESS/VISA CREDIT CARD HOLDERS CAN PHONE OUR 24 HOUR HOTLINE NUMBER:
081-556 2429

DS/ACU Ap.91

SILICON SYSTEMS

113 Potter Street, Northwood, Middlesex, HA6 1QF

Telephone: 09274 22884
or
Prestel Mailbox Number: 999002400

★★★ MASSIVE SAVINGS ON ALL AMSTRAD SOFTWARE/HARDWARE ★★★

We have every title of software under the sun and all the hardware you could possibly want for your CPC/PCW/GX4000

★★★ AMSTRAD CONSOLE £50 ★★★★

★★★ AMSTRAD CPC DD1-1 & DD1 DISC DRIVES £60 EACH ★★★

We also arrange network installations up and down the country, design and write your own programs for your own needs.

★★★ ALL AMSTRAD PC's UP AND RUNNING IN A NORMAL WORKING DAY★★★

ALSO LARGE SELECTION OF:
SEGA MEGA DRIVES £140 (with two FREE GAMES)

GAMEBOY GAMES

All Amstrad CPCS at £250 (either with colour/mono monitor)

For the best prices around - phone TODAY - and speak to me or leave a message on the answerphone.

PAY LESS AND RECEIVE THE BEST!!!

SETTING THINGS UP

John Hudson continues his CP/M+ surgery to help you help yourself

In my last piece I tried to set out the background to the 'attributes' every CP/M file has – its 'user area', its 'Sys(tem)' or 'Dir(ectory)' status and whether it is a 'Read/Write' or a 'Read Only' file. Now I would like to explain how to handle these and one other attribute, for which you will need CP/M Plus, but all of which can safely be used on AMSDOS discs. As I explained last time, you will need SET.COM. Enter

SET d:filename.Ext[sys]

to make a file a 'Sys' file and

SET d:filename.ext[ro]

to make a file 'Read Only'. Replace 'sys' with 'dir' and 'ro' with 'rw' (for 'Read/Write') to return a file to its original status.

A 'Read Only' file cannot normally be deleted or altered unless you use SET to change it to 'Read/Write' status. There are, however, two exceptions to this rule. If you FORMAT a disc, you destroy the directory as well as the files on the disc so the information about which files are 'Read Only' is destroyed at the same time. If you use PIP (the 'Peripheral Interchange Program') to copy files, you cannot normally copy a new version of a file over its old version if the old version is 'Read Only'. PIP will stop and issue an error message. However, you can override this by adding [w], meaning 'write in any case', to the end of your instructions to PIP.

PIP also assumes that you will not normally be copying 'Sys' files; it will therefore stop and tell you politely that the file was 'not found' – unless you add [r] to indicate that you really do want PIP to 'read' a 'Sys' file. Another thing PIP assumes is that you will rarely want to copy files between different user areas. So while PIP will happily copy and link together files from several different disc drives as long as the user area is the same, it needs to be told very clearly to 'go to user area 3 with the file you got from user area 5' if you want to copy a file between different user areas. To do this with PIP Version 3 loaded and the * showing, you would enter:

b:[g3]=b:filename.ext[g5]

However, PIP always leaves the original file where it found it so you end up with two copies in different user areas. Locomotive Software, who created AMSDOS, came up with a different solution if you only want to move a file from one user area to another using AMSDOS,

REN,"0:filename.ext","5:filename.ext"

will 'rename' the file's user number, so effectively moving it from user area 5 to user area 0.

Finding out where files are is fairly easy with CP/M Plus; use your system disc (your backup, not the original!) to load CP/M Plus and then, with the disc you want to examine in drive B: or, if you have a single drive, with it ready for the prompt to swap discs, enter:

DIR B:[user=all]

You can enter a user area with 'USER n' where 'n' is the user number but it is usually easier, particularly if you are changing disc drive at the same time, to put the user number in front of the disc drive label. So

USER 1

or

1A:

logs you on to user area 1, drive A and the A> prompt changes to 1A> while:

3B:

logs you on to user area 3 and drive B: and the prompt changes to 3B>. Though CP/M Plus does not show it, a simple A> or B> stands for 0A> or 0B> and to

BACKING UP AMSDOS FILES

CPC6128 owners who never normally use CP/M Plus will find it worthwhile using PIP Version 3 for backing up AMSDOS files. Simply load CP/M from your system disc, enter PIP and wait for the *. You can then remove your CP/M Plus disc and put it away. Put the disc to be backed up in drive A and the backup disc in drive B (or wait until you are prompted to swap disks if you only have a single drive). Then enter:

b:=a:*.*[aov]

After a few moments PIP will begin listing each file as it copies it; when it has finished, it will offer you the *. You can then replace both discs with another disc to be backed up and its backup disc. If you enter <control-W>, the formula above will reappear; press <return> and the whole process will be repeated. You can carry this on as long as you want. When you have finished, simply press <return> at the asterisk and PIP will disappear.

Just in case you get the discs the wrong way round, you may wish to open the 'Write Protect' hole on each of the discs you want to back up but make sure it is closed on your backup discs. If you do this and get them the wrong way round, PIP will recognise that a mistake has been made, put up an error message and offer you the asterisk once more. You can then put the discs in the right way round and continue.

Doing this the first time, particularly if you only have a single drive, will be fairly tedious as PIP copies everything. But the next time PIP will recognise which files you have changed since the last backup session and only copy those.

Incidentally, unlike DISCKIT, PIP also tidies up files as it copies. If you have a long file that has been through several revisions, it will probably be scattered over several different sectors of a disc. PIP always tries to copy files into a better sequence. So, if you are getting 'Read fail' messages on a fairly full disc, it is always worth using PIP to copy all the files to a new disc. Use the same formula as above except for the [aov] which should be just [ov]...

Figure 1 Output of DIR [full] showing 'Archive' attribute
Directory For Drive A: User 0

Name		Bytes	Recs	Attributes	Name		Bytes	Recs	Attributes
AMSDOS	COM	1k	8	Dir RW	BANKMAN	BAS	1k	7	Dir RW
BANKMAN	BIN	2k	12	Dir RW	C10CPM3	EMS	25k	200	Dir RW
DATE	COM	3k	23	Dir RW	DEVICE	COM	8k	58	Dir RW
DIR	COM	15k	114	Dir RW	DISCKIT	COM	6k	48	Dir RW
ED	COM	10k	73	Dir RW	ERASE	COM	4k	29	Dir RW
GET	COM	7k	51	Dir RW	KEYS	CCP	1k	3	Dir RW
KEYS	WP	1k	3	Dir RW Arcv	LANGUAGE	COM	1k	8	Dir RW
PALETTE	COM	1k	8	Dir RW	PIP	COM	9k	68	Dir RW
PROFILE	FR	1k	1	Dir RW	PROFILE	SP	1k	1	Dir RW
PROFILE	UK	1k	1	Dir RW	PUT	COM	7k	55	Dir RW
RENAME	COM	3k	23	Dir RW	SET	COM	11k	81	Dir RW
SET24X80	COM	1k	8	Dir RW	SETDEF	COM	4k	32	Dir RW
SETKEYS	COM	2k	16	Dir RW	SETLST	COM	2k	16	Dir RW
SETSIO	COM	2k	16	Dir RW	SHOW	COM	9k	66	Dir RW
SUBMIT	COM	6k	42	Dir RW	TYPE	COM	3k	24	Dir RW

Total Bytes = 148k Total Records = 1095 Files Found = 30
Total 1k Blocks = 148 Used/Max Dir Entries For Drive A: 31/64

get back to user area 0 on drive A: from another user area, you need to enter

0A:

A simple 'A:' does not change the user area, only the disc drive.

Though this is mainly about CP/M Plus, it may be worth adding a couple of points about AMSDOS which is, in effect, an 'improvement' on CP/M version 2.2. Instead of having a 'system area', AMSDOS allows users to use programs and data in any user area by simply adding the user number to the filename; so

run '6:myprog

will run the program 'MYPROG.BAS' in user area 6 and you can save and load data to and from any user area so long as its user number is specified in the command. So AMSDOS users can also make full use of user areas to group their files. the AMSDOS command to change to another user area is:

|USER,n

where 'n' is the new user area. If you use this and then enter 'CAT', the preface to the catalogue will say 'User area n' and the amount of free space will take into account the files in other user areas.

There is one more 'attribute' to describe – the Archive attribute. This is only available with PIP Version 3 supplied with CP/M Plus but can be used on AMSDOS discs. Try this: using your system disc (your backup, not the original!), load PIP and copy KEYS.WP from wide 1 to any other disc adding [a] at the end of the PIP command line, as in

b:=a:keys.wp[a]

Then repeat the command and you will get a very unhelpful 'File not found' from PIP. But, if you exit PIP and enter

DIR

you will find the file is still on drive A:. Entering:

DIR [full]

shows that KEYS.WP now has 'Arcv' after 'Dir RW' (Figure 1). KEYS.WP will lose this attribute when the file is amended and then the command 'PIP b:=a:keys.wp[a]' will result in a copy of the amended file being made. The Archive attribute can be turned off with

SET KEYS.WP [archive=off]

If you use [a] every time you back up data, PIP will copy only those 'Dir' files which have been changed since the disc was last backed up. Add [r] or [g] if backing up a file with the 'Sys' attribute or one in a different user area.

Three final points: firstly, most older programs, like Supercalc, do not understand user areas but, if you make all the Supercalc files in user area 0 into 'Sys' files with:

SET B:SC2*.*[sys]

(either by using a separate drive B: or by swapping discs as requested), you can then log onto a different user area and run Supercalc from within a different user area. All your data files will be saved to this user area but, if you exit Supercalc and change the user area again, Supercalc will still run from the new user area but your old data files will be inaccessible in the previous user area until you exit Supercalc and log back into the previous user area again.

Secondly, you will find that some directory displays may look rather odd because CP/M uses the 'eighth bit' of certain characters in a filename to record some of the attributes. Since each character in a filename only needs seven bits, CP/M interprets the eighth bit separately from the first seven. But older programs interpret the eighth bit as part of the letter and display funny characters on the screen.

Thirdly, every time you save a new version of a 'Sys' file CP/M resets the 'Sys' attribute to 'Dir' and leaves it in the current user area. This happens whenever I add a new word to the supplementary dictionary in my spelling checker because the program rewrites the whole supplementary dictionary with the new word in the correct alphabetical sequence. In order to access the supplementary dictionary from all user areas, I have to reset the 'Sys' attribute for this one file and, in some cases, copy it back to user area 0 after I have added a new word. I use a SUBMIT file to carry this each time but more recent programs cope with this automatically.

Everything I have talked about so far can be done on standard data format discs which can be used by both AMSDOS and CP/M. But when Digital Research decided to replace version 2.2 with version 3, or CP/M Plus as it later became known, it knew it had to offer better directory facilities. This meant re-writing the information stored on the directory tracks of the discs.

The new directory tracks could not be read by version 2.2 but many users would want to continue using discs on both version 2.2 and version 3 machines. So CP/M Plus was written to be able to read both the older and the newer format discs. AMSDOS follows the older format used by versions 2.2 so 6128 owners can choose either format. DISCKIT in fact only produces old format discs. To create a new format disc, you must take an existing old format disc and use INITDIR (for 'Initialise Directory') to create the new format. Once you have done this, a whole new world of atributes, including disc labels, date and time stamps and passwords, becomes available to you. That is the subject of my next piece.

...If PIP encounters a 'Read fail', your disc is definitely corrupted; PIP will tell you which file has been corrupted but you cannot use the same formula to get at the rest of the files. You will know from PIP which files have been successfully copied; you will need to use DIR to identify the remainder, reload PIP and then enter their names individually.

My experience has been that PIP doesn't usually encounter a 'Read fail'. I would therefore always try this before suspecting a hardware fault.

OPEN SES

THE SPRING COMPUTER SHOPPER SHOW NOW MEANS THAT CHRISTMAS COMES TWICE A YEAR FOR BUYERS



CAPS ON

By Thomas Betts



Hip, hip, hooray for Thomas with this nifty caps on/off routine. It's very straightforward, so we won't bore you with details. Just run it and it'll sure come in handy.

```
1 REM  An all-BASIC Caps lock
2 REM  module offered to ACU
3 REM  and the public domain
4 REM     by Thomas Betts.
5 REM
6 REM n=0 for     Caps off.
7 REM             Hip,hip,hoorah!
8 REM n=1 for     Caps on.
9 REM
10 GOSUB 20:END
20 RESTORE 70
30 FOR asciicode=97 TO 122
40 READ keynum
50 KEY DEF keynum,1,asciicode-n*32
60 NEXT
70 DATA 69,54,62,61,58,53,52,44,35
80 DATA 45,37,36,38,46,34,27,67,50
90 DATA 60,51,42,55,59,63,43,71
100 RETURN
```



PATTERN

By David Hall

Run this neat little proggy from Mr Hall and you can use your joystick to create just about any pattern you like, be it your name, password, or simply a masterpiece. Whatever, it's all good, clean fun.

```
10 INK 0,0:BORDER 3:DIM a(15):MODE 0:FOR t=1 TO 15
:READ a(t-1):INK t,a(t-1):NEXT:x=10:y=10:col=2:v=0
:hu=col:GOSUB 100:DATA 14,15,10,6,26,19,16,12,1,7,
19,20,23,8,21
20 IF INKEY(74)=0 AND x>1 THEN hu=v:GOSUB 100:x=x-
1:v=TEST(x*16,400-y*12):hu=col:GOSUB 100 ELSE IF I
NKEY(72)=0 AND y>1 THEN hu=v:GOSUB 100:y=y-1:v=TES
T(x*16,400-y*12):hu=col:GOSUB 100
30 IF INKEY(73)=0 AND y<32 THEN hu=v:GOSUB 100:y=y
+1:v=TEST(x*16,400-y*12):hu=col:GOSUB 100 ELSE IF
INKEY(75)=0 AND x<38 THEN hu=v:GOSUB 100:x=x+1:v=T
EST(x*16,400-y*12):hu=col:GOSUB 100
40 IF INKEY(39)=0 AND col>0 THEN col=col-1:hu=col:
GOSUB 100 ELSE IF INKEY(31)=0 AND col<15 THEN col=
col+1:hu=col:GOSUB 100
50 IF INKEY(76)=0 THEN PRINT CHR$(7)::v=col
60 IF INKEY(60)=0 THEN SPEED WRITE 1:SAVE "!patter
n",b,&C000,&4000
70 IF INKEY(36)=0 THEN LOAD "!pattern"
80 IF INKEY(47)<>0 THEN 20
90 BORDER 0:WHILE col<>100:v=a(1):FOR t=1 TO 14:a(
t)=a(t+1):NEXT:a(15)=v:FOR t=1 TO 15:INK t,a(t):NE
XT:WEND
100 MOVE x*16,400-y*12:FOR t=1 TO 6:DRAWR 12,0,hu:
MOVER -12,-2:NEXT:RETURN
```

EFFECT

This gem from the Hall catalogue will help all you budding game programmers to get a very professional touch. Run it and you'll know you've seen this smart inter-screen effect on some of the big name games themselves.



By David Hall

```
1 ' Any key = stop program
2 '
10 FOR t=40 TO 1 STEP-1:GOSUB 50:NEXT
20 INK 0,RND*25:FOR t=0 TO 40:GOSUB 50:NEXT
30 FOR j=1 TO 1000:NEXT
40 i$=INKEY$:IF i$="" THEN 10 ELSE INK 0,0:END
50 CALL &BD19:OUT &BC00,1:OUT &BD00,t:RETURN
```



FOREST

Hats off to Mr Watson for adding to our environmentalist bent. Using clever fractals, watch as the lush rain forest comes into view. A very neat graphics demo.

By Simon Watson

```
1 ' Fractal Forest
2 ' By Simon Watson
3 ' (c)1991
4 '
10 MODE 2:INK 1,22:DIM x(16),y(16),d(16)
20 x(0)=50:y(0)=50:x(1)=590:y(1)=50:d(0)=5:n=0
30 GOSUB 60:n=n+3:IF d(n)>0 THEN GOTO 30
40 n=n-3:MOVE x(n),y(n):FOR p=1 TO 4:DRAW x(n+p),y
(n+p):NEXT
50 IF n=0 THEN END ELSE n=n-1:GOTO 30
60 xd=x(n+1)-x(n):yd=y(n+1)-y(n):x=xd/50:y=yd/50
70 x(n+4)=x(n+1):y(n+4)=y(n+1):x(n+1)=x(n)+(15.666
*x)
80 y(n+1)=y(n)+(15.666*y):x(n+2)=x(n+1)+x-(20*y)
90 y(n+2)=y(n+1)+y+(20*x):x(n+3)=x(n)+(17.666*x)
100 y(n+3)=y(n)+(17.666*y):d=d(n)-1:FOR a=n TO n+4
:d(a)=d:NEXT:RETURN
```

INTEREST



By David Hall

Have you ever wanted to know just how much that little lump sum of yours could make over a few years? Using this intelligent interest calculator, you'll be able to see at a glance where your money is going to earn the best using variable rates. A nice little earner, in fact.

```
10 MODE 0:INK 0,0:PAPER 0:CLS:PRINT
20 PEN 11:PRINT "* VERY INTERESTING *"
30 LOCATE 1,9:PEN 6:INPUT "Amount £",a
40 PRINT:PEN 7:INPUT "Time (years) ",t
50 PRINT:PEN 3:INPUT "Interest in % ",r
60 PRINT:PEN 1:PRINT "(C)ompound/(S)imple"
70 i$=INKEY$:z$=LOWER$(i$):IF z$="c" THEN 90
80 IF z$<>"s" THEN 70 ELSE p=(a*r*t)/100:a=a+p:GOT
O 100
90 m=a*((1+r/100)^t):a=m
100 PEN 15:LOCATE 2,21:PRINT "Total=";USING"££££££
££,.££";a:PEN 1:PRINT:END
```

DATEL ELECTRONICS

dk'tronics — 64K AND 256K MEMORY EXPANSION



- Simple plug in memory expansion gives instant extra memory.
- Features bank switching software for easy use by the programmer or for use as a data storage area.
- The software also features some extra BASIC commands.
- 64K unit expands 464 to 128K. The 256K unit takes your 6128 to 320K!!
- 64K unit brings 464 up to CPC 6128 memory configuration making a much larger software base available. Will work straight off with many programs designed for this unit (including OCP Art Studio - see Ad.).
- Ideal for use with the CPM 2.2 etc.
- Bank switching done automatically by software (cassette 464 - disk 6128).

ONLY £49.99 64K FOR 464
ONLY £99.99
256K FOR 464 OR 6128 (PLEASE STATE)

THE RAM MUSIC MACHINE IS PROBABLY THE MOST EXCITING MUSIC ADD-ON AVAILABLE FOR ANY COMPUTER

RAM music machine



- It's a full sound sampling system allowing any sound to be recorded digitally into the computer RAM. Once stored, the sound can be replayed at different pitches with many varying effects.
- It's an echo chamber & digital delay line. Create some very interesting effects.
- It's a two voice music/sound synth.
- The Music Machine can also be used as a drum machine - eight drum sounds are already provided for you, but you can easily produce more of your own.
- The extremely powerful software allows you to compose tunes from individual bars of music. You can edit your creations on screen & Save/Load sounds, instruments & rhythms.
- Fully MIDI compatible. The Ram Music Machine supports full MIDI In, MIDI Out & MIDI Thru.
- Output through your Hi-Fi or Headphones. Comes complete with microphone.
- Use a full size MIDI keyboard to play the Music Machine.
- Sounds produced by the Music Machine can be mixed with a MIDI synthesiser's own sounds.
- On screen Sound Editor can produce MIDI data from your own compositions.
- Various sampled sounds are provided in order to get you going.
- No other product can offer so much in one unit - it's the TOTAL SOLUTION!!

ONLY £49.99
FOR THE BEST MUSIC ADD-ON AVAILABLE FOR THE AMSTRAD

AMDRUM



- **Now you can turn your Amstrad into a real Digital Drum Machine.**
- AmDrum from Cheetah Marketing is a superb plug in device that produces "real" drum sounds via its unique digital system.
- On screen menu driven drum kit makes composing drum sounds easy for anyone to do!
- Just plug the output into your Hi-Fi, cassette player, etc. and that's it - your Amstrad is a drum kit!!
- Comes complete with DrumKit Sound plus extra DrumKit and Kit Editor Program (worth £9.99) absolutely FREE!!

ONLY £14.99

SPEECH SYNTHESISER & STEREO SOUND BOOSTER

- This easy to use Speech Synthesiser includes a powerful Stereo Amplifier and two pod speakers which are an enormous improvement on the sound supplied by the internal mono speaker.
- Speech output is monorial but directed to both speakers. Booster gives stereo to computer internal sound output.
- Using the SPO/256 Speech Chip the unit has almost infinite vocabulary.
- Text to speech software is provided in ROM to make speech output simplicity itself.
- Voicing is transparent to the user and the computer can carry on with other program tasks as necessary.



ONLY £29.99
464 OR 6128 (Please state which)

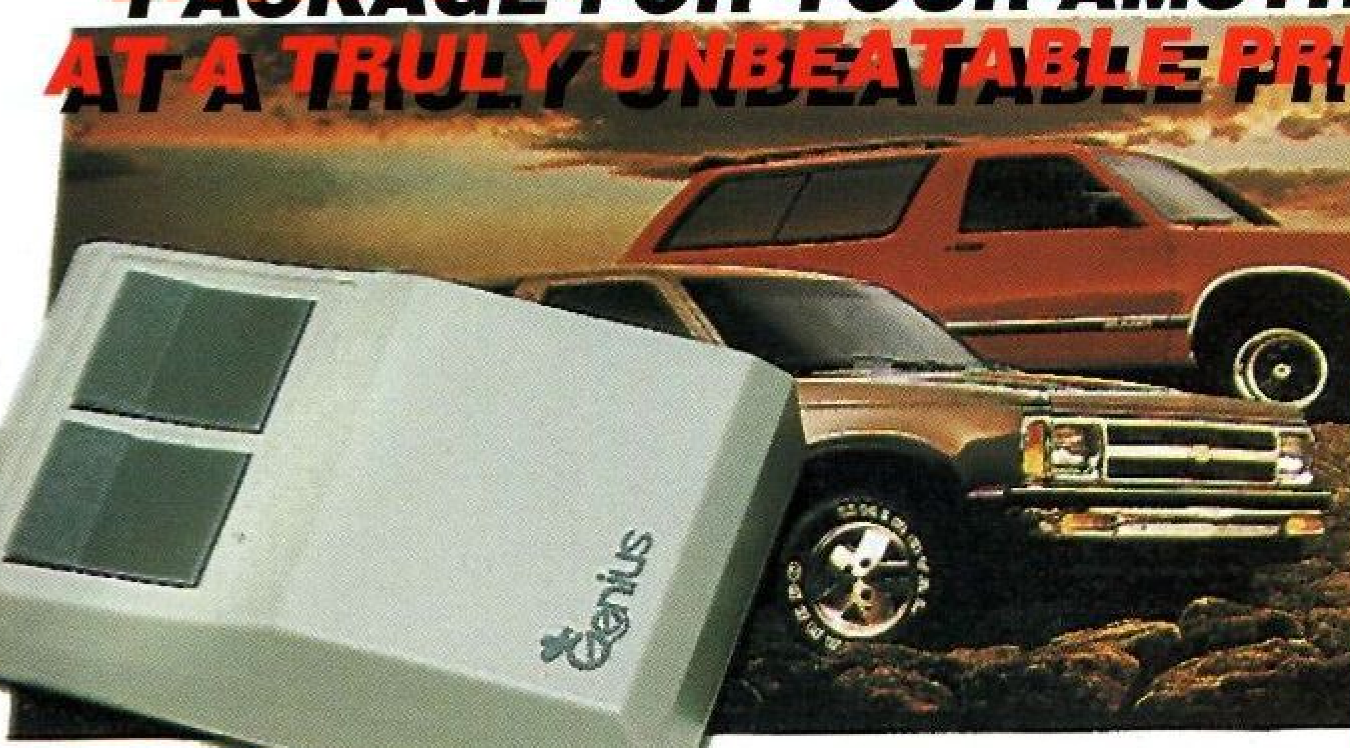
dk'tronics — LIGHTPEN/GRAPHICS SYSTEM

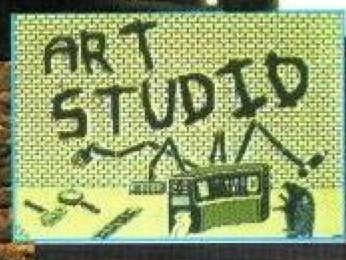


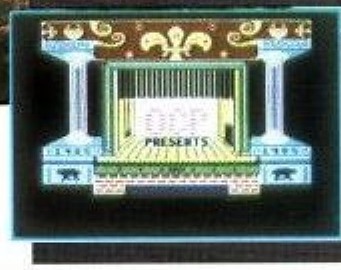
- Complete Lightpen and graphics system lets you create a whole range of effects on screen.
- It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.
- Pictures can be edited at pixel level using a scratch pad which is magnified to a full screen.
- Picture storage and retrieval, and a pen calibration feature.
- Printer dump utilities for Epson/Amstrad printers supplied (on cassette).
- Complete package - no more to buy.

ONLY £14.99 CASSETTE
OR £24.99 WITH SOFTWARE ON ROM - NOTHING TO LOAD 464 OR 6128 (Please state which)

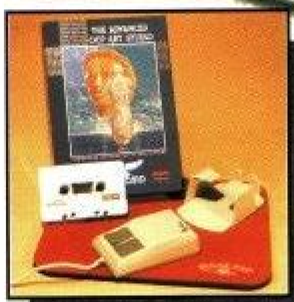
NOW A TOTAL MOUSE/GRAPHICS PACKAGE FOR YOUR AMSTRAD AT A TRULY UNBEATABLE PRICE!!







TAPE OR DISK FOR 464 OR 6128 (PLEASE STATE WHICH REQUIRED) N.B. 464 NEEDS DK'TRONICS 64K RAM PACK

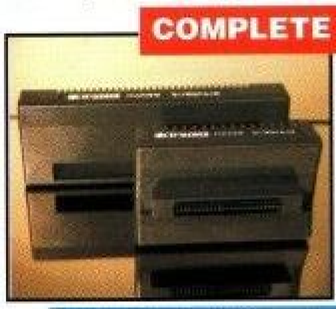


Genius Mouse COMPLETE WITH OCP ADVANCED ART STUDIO

- **Genius Mouse is a high resolution two button mouse featuring optical counting, teflon guides, microswitches, rubber coated ball and high quality interface.**
- **When combined with OCP Advanced Art Studio this graphics package is quite simply the best system available. The features are unmatched...**
- Create an image - shrink it, expand it, move it, rotate it, copy it, colour it, etc., etc.
- Spray patterns or shades, make elastic lines - stretch and manipulate shapes.
- Zoom in to add detail in fine mode. • Full cut and paste facilities plus excellent printer support.
- Pulldown/Icon driven menus for ease of use. • Mouse operation, plus joystick and keyboard control.
- 16 pens, 8 sprays, 16 brushes - so flexible anyone can create superb graphics easily.



COMPLETE WITH MOUSE INTERFACE

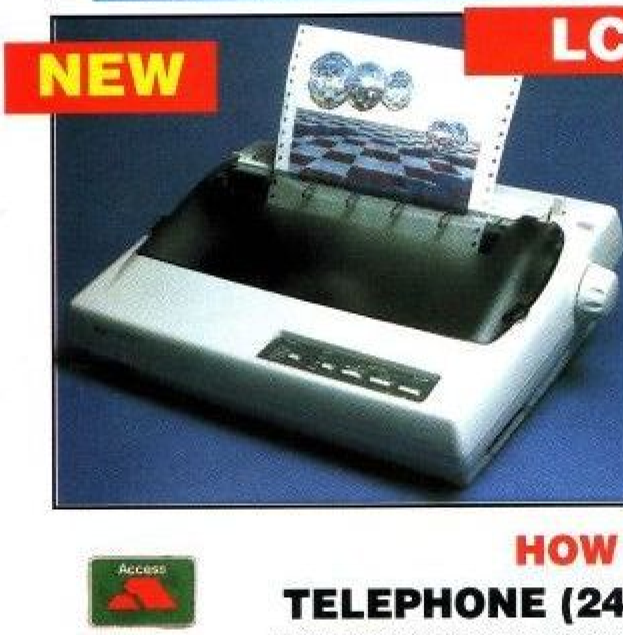


- The Genius Mouse Graphics System comes complete with the special Mouse Interface to allow super smooth control.
- Attractively styled to match your 464 or 6128 design and colour.
- Simply plugs into Expansion/Joystick port.

ONLY £49.99
TOTAL PACKAGE INCLUDES GENIUS MOUSE, INTERFACE, OCP ADVANCED ART STUDIO PLUS FREE MOUSE MAT AND HOLDER

FREE!
MOUSE MAT AND MOUSE HOLDER
(WORTH £12.99) WITH EACH PACKAGE

NEW



LC 200 COLOUR PRINTER PACKAGE

NOW YOU CAN PRINT OUT YOUR PICTURES IN FULL COLOUR!

- The Star LC200 Colour Printer not only prints in Near Letter Quality for your regular jobs but also prints out your pictures from Art Studio, etc., in genuine colour!
- LC200 is a full Centronics printer so it works with other computers (Amiga, ST, etc.).
- Made possible by Datel's unique colour printer driver - now you can have a hardcopy in up to 16 colours!! • No more to buy - just plug in and print!!

PACKAGE INCLUDES... STAR LC200 COLOUR PRINTER RRP £299.00
CENTRONICS PRINTER LEAD RRP £9.99
DATEL COLOUR PRINTER DRIVER SOFTWARE RRP £19.99
NORMALLY £327.98
COMPLETE PACKAGE NOW ONLY £239.00

COLOUR PRINTER DRIVER AVAILABLE SEPARATELY ONLY £19.99

- If you already have an LC10 or LC 200 Colour Printer we can supply the Driver separately.

HOW TO GET YOUR ORDER FAST...

Access

TELEPHONE (24 Hrs) - 0782 744707 - CREDIT CARD ORDERS

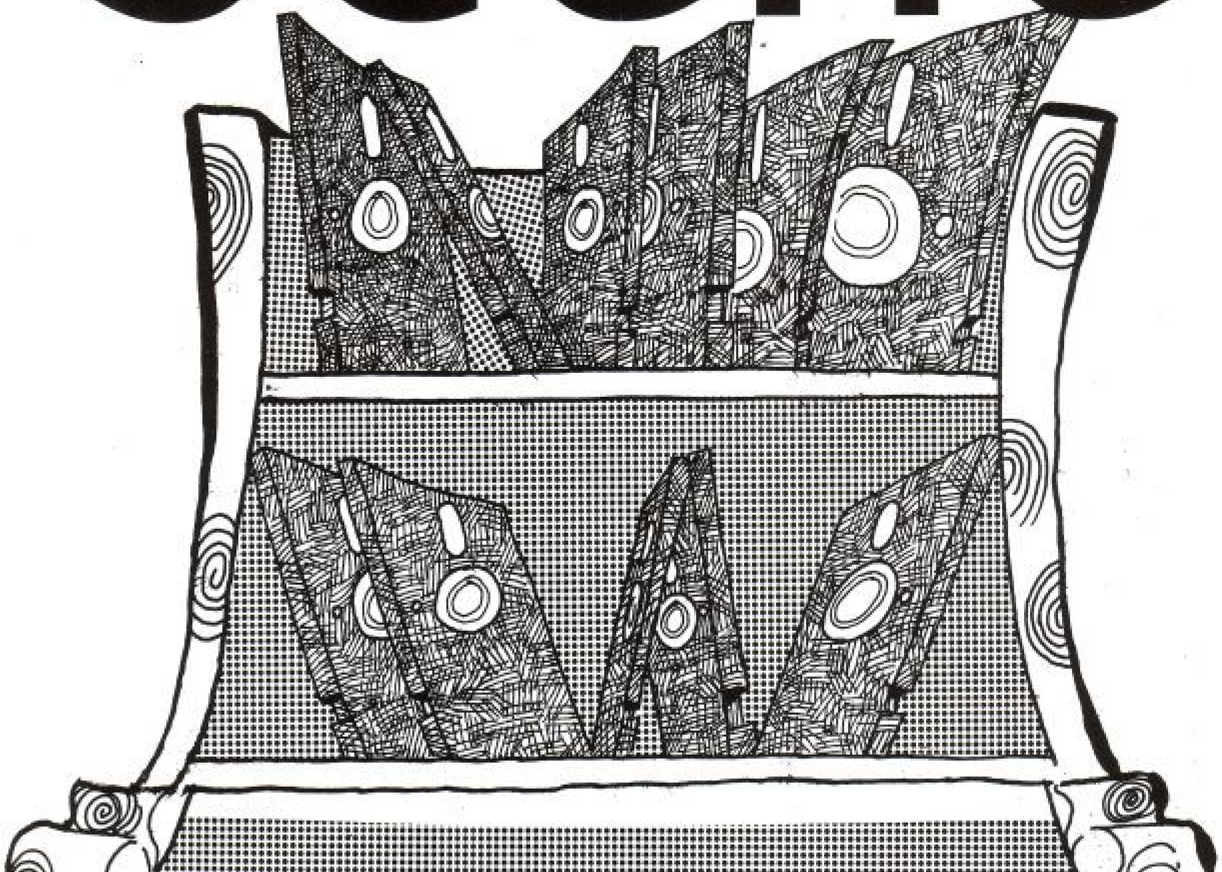
VISA

WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS. ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL PRICES INCLUDE V.A.T. UK ORDERS POST FREE/EUROPE ADD £1/OVERSEAS ADD £3. PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS AND SUBJECT TO CHANGE WITHOUT NOTICE. CALLERS WELCOME - Please reserve goods by telephone prior to visit. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

DATEL ELECTRONICS LTD.,

GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT, ST4 2RS, ENGLAND
TELEPHONE SALES ONLY 0782 744707 FAX 0782 744292 TECHNICAL/CUSTOMER SERVICE 0782 744324

PD Scene



PD maestro Paul Tint tells us how our long suffering Arnold's finally get a chance to talk back!

Thomas is a version of the famous artificial intelligence program Eliza. It is a conversational program allowing you to talk with the computer. The computer responses are determined by keywords in the last sentence you typed in.

But, not only can you now converse with your CPC, you can be insulted by it too! Thomas is the most insulting piece of software I have ever met. The person who wrote this program must have a very twisted mind!

Obviously, this type of program on a CPC is not going to be as good as on a MAC mainly because of the lack of memory. However, that said, Thomas is still good fun for an hour or two. After a few turns, you can make the program talk to you by using words that you know it recognises. And, since it is written in Basic, you can expand it adding even more insult to injury!

A sample conversation with Thomas could go something like this:

ME: Hello Thomas.
TH: I was told never to speak to strangers who say 'hello'. For all I know, you could be a dirty old man
ME: Ah, but you're a computer so it doesn't matter.
TH: Computers are very nice but personally I would rather be a Chinese hamster..
ME: So you want to be a cross between a dirty old man and a Chinese hamster?
TH: Hi? You mean like high & low right?
ME: That doesn't make sense!
TH: You don't make a lot of sense yourself!
ME: Do you like insulting people?
TH: Oh, I'm sorry I insulted you. Please take my apology.
ME: You should be sorry too!
TH: Please! I know I should.
ME: OK, you can get up off your knees now!
TH: I don't know. Maybe you should ask the author of this program.
ME: What a dumb answer!
TH: I can't stand you! Why should I answer properly?
ME: Because computers are supposed to be intelligent.
TH: Because this, because that: stop trying to bore me.
ME: Me bore you, hah, that's a laugh!
TH: I really can't stand you at all!
ME: How rude you are.
TH: Am I being rude? Sorry I didn't notice.

...And it goes on, I'm sure you get the general picture.

For the limited K available on the CPC. Thomas is really good. Although it is not very useful, it is fun. Who know, someone might program a 128K version and then no CPC owner would be safe (perish the thought!)

More Adventures

Lost Shadow is a text adventure program using the Quill. In the adventure you take the role of a great professor in the small town of Centerly. When trying



to prepare an invisibility potion you drink a little to see if it has side effects... Unfortunately (for you!) it does... it makes you totally mad! You storm through your lab smashing bottles of everything in sight. It's not long before you set fire to your lab and the solution to your problem.

Eventually you calm down and rest a safe distance from the burning building. But there is still one major problem, you're invisible! Don't worry though, all is not lost. You have, in your pocket, a list of the ingredients. Quickly you search your jacket. Unable to find the list you realise you must have dropped it. Perhaps if you can find it again, and then all the ingredients on the list, you may just be able to return to normal.

The Search for Largo Grann is a graphical adventure that starts within the hangards of Vesper space stztion. Your task is to find Largo Grann, an alien friend of yours, who has absconded with the Duvilus Quantum Thrusting Device (DQTD). You must find Largo before he is executed by the imperialist law enforcement agencies, not an easy task.

The last adventure I'm going to mention is called Storm Mountain. This is another Quilled text adventure and is written by Tony Kingsmill of Data PD.

Many people lived on Storm Mountain until disaster struck. The sky exploded and the earth split, turning the mountain into a death zone. Tribes believed this was the work of the gods and very few dared return which is why the mountain is still full of treasures today.

Few people live in the mountain today, and much of the treasure is still hidden. Many people still fear that the gods may strike them if they go near the treasure. Are you brave (or stupid) enough to look for it?



Where To Go

To get some PD on your CPC, then contact any, or all, of the following libraries:

● **Scull PD Library, 9 Barra Wynd, Broomlands, Irvine KA11 1DB.**
Now relocated in Irvine, Scull PD has over 70 disks of PD software including Pagemaker Plus (last month) plus non PD games at PD prices! The concise stocklist/newsletter is free to anyone who sends an SSAE (or 30p). To sample their varied wares, send £1, a disk, and SSAE. Please make cheques and postal orders payable to 'Alan Scully'.

● **Data PD Library, 202 Park Street Lane, Park Street, St albans, Herts AL2 2AQ.**
Send an SSAE or 30p to receive a copy of the free Data Stock List cum Newsletter. Alternatively you can send a disk/cassette, 50p and SSAE to receive the 'Data PD Starter Pack' which contains a mixture of programs to get you started. Data supports both cassette and disk PD, and overseas orders are welcome (send £3.50 extra for disk and postage is to be supplied).

● **Adventure PD, 10 Overton Road, Abbey Wood, London SE2 9SD or Phone Debby on 081 310 9877.**
Adventure PD is more than just a PD library. It offers a help service, maps, solutions and non PD programs. Send an SSAE for a copy of the free catalogue. Prices are £1 per selection (one side of a disk or C60 cassette). Disks can be supplied for £2.50 each.

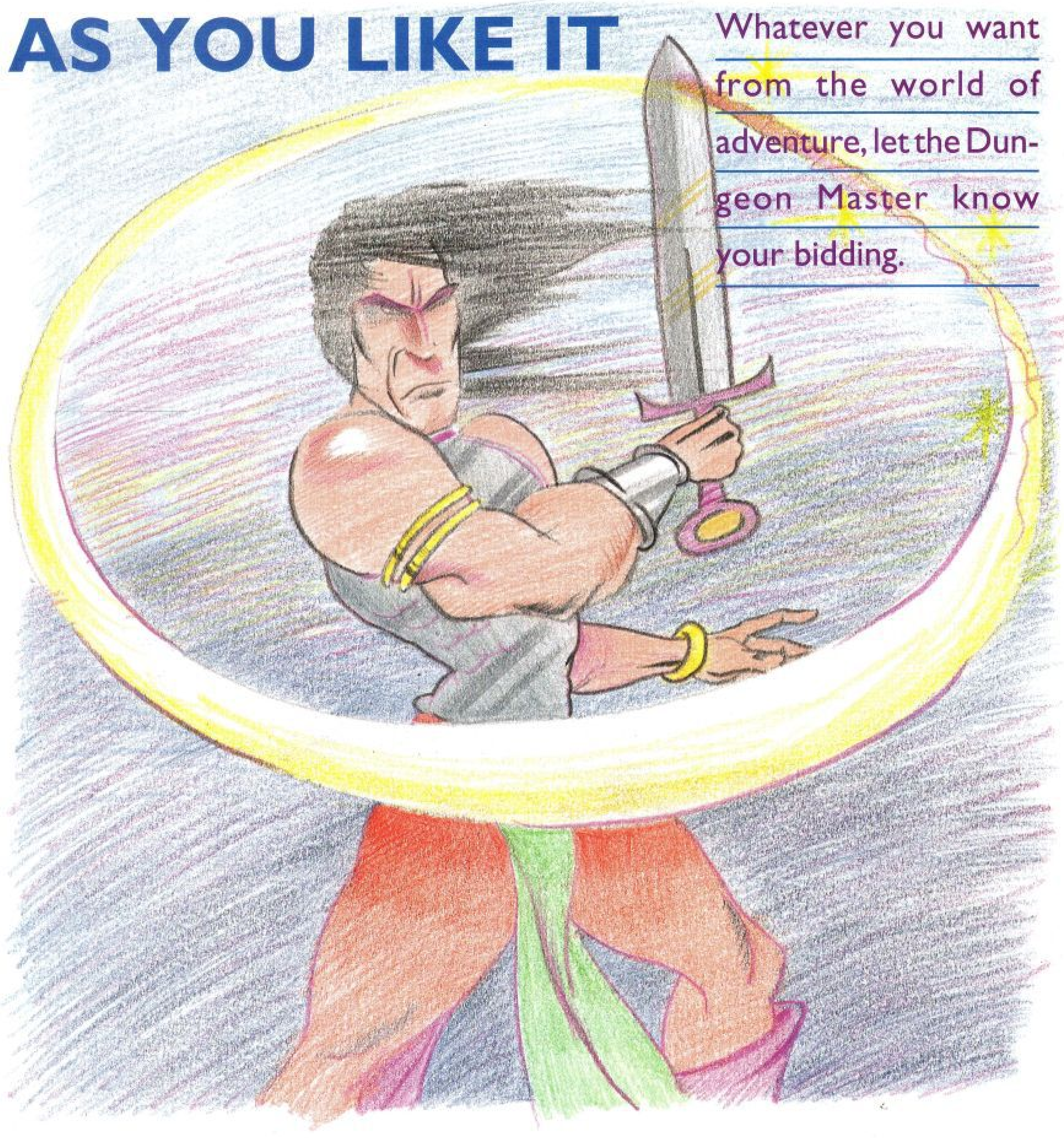
Get In Touch!

Is your library hotter than the back of my 25 year old TV? Does your software burn a hole in your computer? If so, then I want to hear from you pronto. In fact, even if your programs are worse than 'Bridge-It' I want to hear from you. So pop a disk or cassette (disks have a better chance of review), your stocklist and all relevant details to me (Paul Tint, in case you've forgotten), via ACU. Send an SSAE if you want your thingies returned.

You don't have to run a PD library to get in touch either. Perhaps you're selling some programs at PD prices, have comments on my column or PD in general. Whatever you've got to say, pop me a line. It's nice to know I'm loved (ahem!).

AS YOU LIKE IT

Whatever you want from the world of adventure, let the Dungeon Master know your bidding.



First of all this month, I would like to express my thanks to all of the readers that have written in to say how much they are enjoying the new adventure column. Bearing in mind the delay between the writing of this column and it actually appearing in print, these particular writers have been very quick off the mark. So thank you to everybody for your letters and if you haven't yet written, don't delay any longer because I would love to hear from each and every one of you.

You can write to me about any adventuring topic. It could be about the type of adventure you enjoy the most, a personal review of your latest purchase or exploit, or perhaps a recollection of your favourite game, a sort of "Blast from the past". Lists of tips and hints, full solutions or cries for help, are also welcome. I intend that the future content of these pages will be filled with the type of material that you want to read but I can only guarantee that, if you write in and tell me what it is you would like.

First letter to arrive was from a very famous lady adventurer, Joan Pancott. Apart from saying some very nice things about the new column, (thanks Joan,) Joan has also got some terrific news for all CPC adventurers. WoW Software is a company which she has formed, to promote adventures which may have been over-looked when the 8 bit market was being flooded by the major software houses. Now that these com-

A little homework

panies have deserted the 8 bit computer (that's us folks), Joan feels that this is the ideal time to take a look at some of these games. Although the tag "Home-grown" can in some peoples' minds equal "inferior", this is often far from the truth. There are many excel-

lent adventure writers who, for one reason or another, have never wanted to get involved with a major publisher, preferring to write games purely as a hobby and to sell their games by mail-order. Joan has played all these games in the past and she is now building a catalogue of the titles that she was impressed by and feels deserve a wider audience. And that's not all. WoW are also publishing some new adventures that have not been available previously. In fact as I write this, news is coming in of additional titles being added almost daily, so to obtain the latest information, I suggest you write to: WoW Software. 78 Radipole Lane, Weymouth, Dorset. DT4 9RS. Prices vary on cassette from £1.50 to £2.25 which is excellent value for money. They can also be supplied on disc. When space permits, I will be including some reviews of the games received so far.

Tinker's Paradise

The term "Home-brew" may be unknown to some readers, so let me explain. A lot of games programmers began their careers, tinkering away in their bedrooms, usually on Spectrums



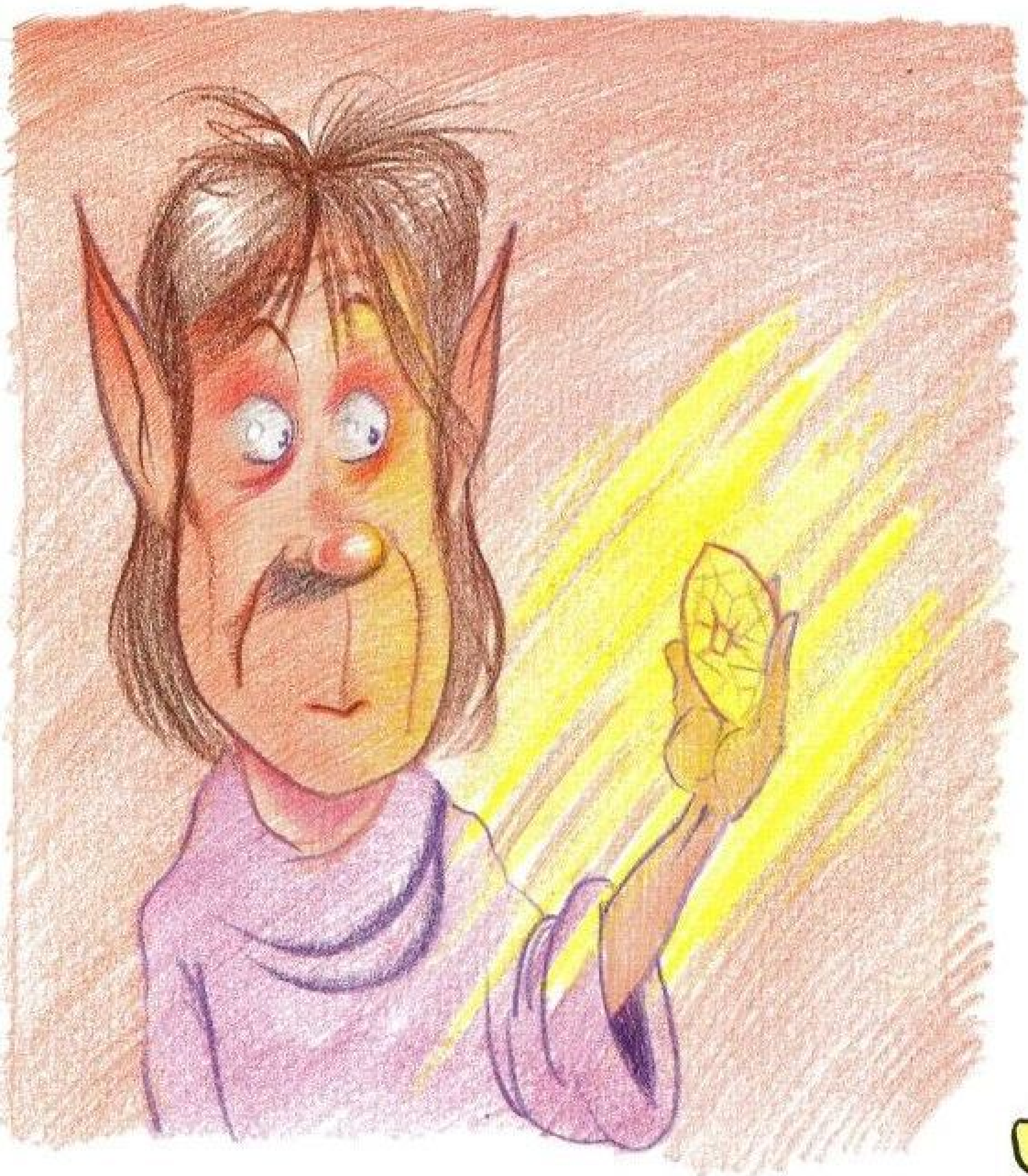
because the CPC had not been invented at that time. Large software houses and dedicated computer software shops, did not exist either. These early programmers sold their games through classified ads, etc. As they became more proficient and the consumer demand increased, so it naturally followed that small businesses were set up to handle the marketing and distribution. It also naturally followed, that some of the small businesses grew to be the giants that we have today.

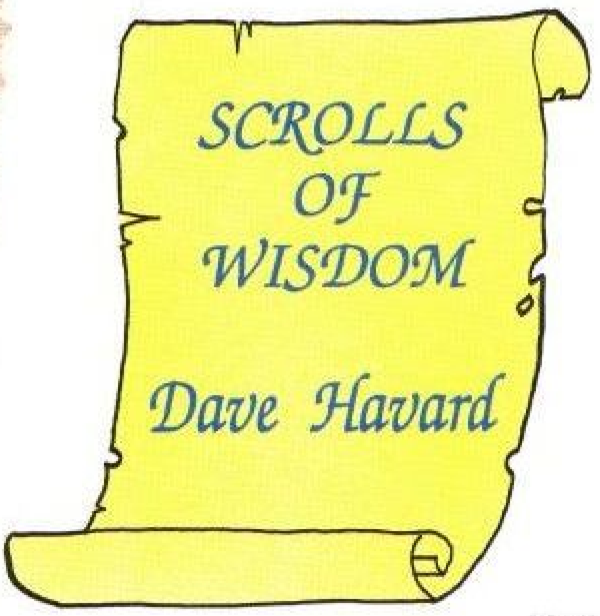
When the CPC arrived in 1984, a lot of the software companies were already established, with a string of successful games released on the Spectrum and BBC, already behind them. To convert a text adventure from one computer format to another is a fairly simple exercise, so the new CPC owner was greeted almost immediately with a large choice of adventures to choose from, as the established houses converted their old titles across to the CPC. This meant that the Amstrad owner was very lucky and on the whole, avoided the then usual experience, of owning a new machine but without having any software to run on it.

We are now starting to turn full circle as the major software producers are concentrating their output on the lucrative, ie more profitable, 16 bit machines. This is beginning to leave a gap on the software shop shelves but once again, the programmers are tinkering away in their bedrooms. (Make of that whatever you will!) This means that the CPC adventure market, is as alive and well as ever before but the games are now being supplied by mail-order, via classified ads or through the specialist adventure magazines, like Adventure Probe. I cannot say that every home-grown game is excellent but then neither was every release from Level 9 or Magnetic Scrolls either. Neither are you likely to receive your game in a glossy box complete with a full length novel, free cuddly toy and a badge. But you will on the whole, receive a very play-able adventure at a remarkably low price. Which would you rather have?

I will be doing my best through this column, to keep you informed of what games have been released and what I think of them. Provided of course, that the adventure authors send them into ACU for my review.

Finally, Dave Havard has offered to keep us supplied with Infocom tips and maps, etc. This offer is most gratefully accepted and any similar offers of help would be most welcome. I think we will devote a small area to helpful adventurers, called "Scrolls of Wisdom". So Dave is the first name on our scroll. Will your name be on it next month?





Happy Birthday Maxam

It is the 5th anniversary of the release of Maxam, the first ROM based program for the CPC.
To celebrate this occasion Arnor are having a sale of CPC products for the first time.
Everyone knows that our ROM software is the best business and utility software for the CPC, so we will just give you the prices :-
All 7 Arnor ROMs are available at special prices and additional savings may be made by buying more than one program. The programs are:

Protext	Maxam
Prospell	Maxam 1.5
Promerge Plus	BCPL
Utopia	

The ROMBO ROM box can also be supplied at an additional cost of just £20 if one or more program is being purchased. We are unable to supply the ROMBO separately.
Please note that if Maxam 1.5 and Protext are purchased then Maxam is not needed.

Number of ROMs	price without Rombo	price with Rombo
1	£25	£45
2	£40	£60
3	£60	£80
4	£75	£95
5	£90	£110
6	£100	£120

ORDER FORM - Send to: Arnor (ACU), 611 Lincoln Road, Peterborough, PE1 3HA
Please send me (indicate where applicable):

- ❏ ROMBO
- ❏ PROSPELL
- ❏ UTOPIA
- ❏ MAXAM 1.5
- ❏ PROTEXT
- ❏ PROMERGE +
- ❏ MAXAM
- ❏ BCPL

I enclose Cheque / Postal order for £ .... or debit my
Access/Visa card no. ______________ Exp. ___/___

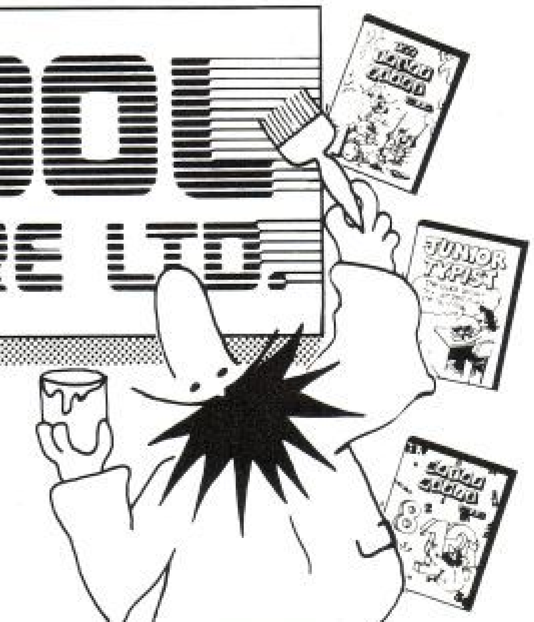
Name ....
Address ....
....
....
Postcode ....

Releasing your micro's potential...

Arnor (ACU), 611 Lincoln Road, Peterborough, PE1 3HA. Tel: 0733 68909 (24hr) Fax: 0733 67299

All prices include VAT, postage and packing. Credit card orders will be despatched by return of post. If paying by cheque please allow 10-14 days for delivery.

SCHOOL SOFTWARE LTD.



THE THREE BEARS (5 - 10)
IBM, ST, CPC, AMIGA.
Superbly reviewed educational adventure. Develops reading and imagination.

BETTER SPELLING (8 - 18)
IBM, ST, PCW, AMIGA, CPC, BBC, CBM (D). Highly acclaimed tutor. Received excellent reviews. Challenging.

BETTER MATHS (12 - 16 GCSE)
IBM, PCW, ST, AMIGA, CPC, CBM (D). Very comprehensive coverage of all the major aspects of maths for this age group. Excellent.

BIOLOGY (12 - 16 GCSE)
IBM, PCW, CPC, CBM (D). Excellent interactive tutorials on all the important areas of biology.

CHEMISTRY (12 - 16 GCSE)
IBM, PCW, CPC, CBM (D). Ideal for home or school. Intensive tutor.

PHYSICS (12 - 16 GCSE)
IBM, PCW, CPC, CBM (D).
An outstanding example of what can be achieved by computer.

GEOGRAPHY QUIZ CPC, BBC, CBM (D). England, Scotland, Wales, Ireland. Superb program with excellent graphics.

THE BEST IN EDUCATION

HOW TO ORDER

1. Post your order.
2. Fax your order.
3. Ring credit card number.
4. Ring for advice.
5. Ask your dealer to order.

Prices:

CPC DISKS	£16.95
CASS	£10.95
P & P	£1.00

ORDER DIRECT TO:
School Software Ltd., Tait Business Centre, Dominic Street, Limerick, Ireland.
Tel: (U.K.) 010 353-61-45399.
Fax Orders: 010 353-61-44315.
Credit Card Hotline (U.K.): 010 353-61-45399.
Others Tel: 010 353-61-45399.
Access/Mastercard/Eurocard/Barclaycard/Visa No.

Expiry Date ______ Cheque/PO ☐
My machine ______
Titles ______
Name ______
Address ______

the AMAZING SPIDER-MAN®

THE AMAZING SPIDER-MAN WILL HAVE YOU CLIMBING UP THE WALL

Take the role of Marvels' favourite character - Spider Man - in a highly addictive race against time to save Mary Jane from the hands of Mysterio.

- ★ Crawl through poisonous, rat-infested sewers, wonder at the ever changing gravity of outer space.
- ★ Defend yourself from mechanical mummies in ancient tombs.
- ★ Fight Godzilla as you climb Manhattan skyscrapers.
- ★ Explore Wild West gold mines riddled with high explosives.
- ★ Swing on webs over shark-infested castle moats and pits of fire.
- ★ Moving platforms, Illusionary walls, electrified floors and intelligent robots.

265 SPRITES OF ANIMATION FOR SPIDEY • COMPLETE CONTROL OF PETER PARKER'S SECRET WEB FORMULA • FIRE IN 8 DIRECTIONS • STUN ROBOTS, HIT SWITCHES AND CLIMB WEBS TO SAFETY • SWING FROM WEB TO WEB OVER TRAPS AND HAZZARDS SET BY MYSTERIO.



C+VG HIT!

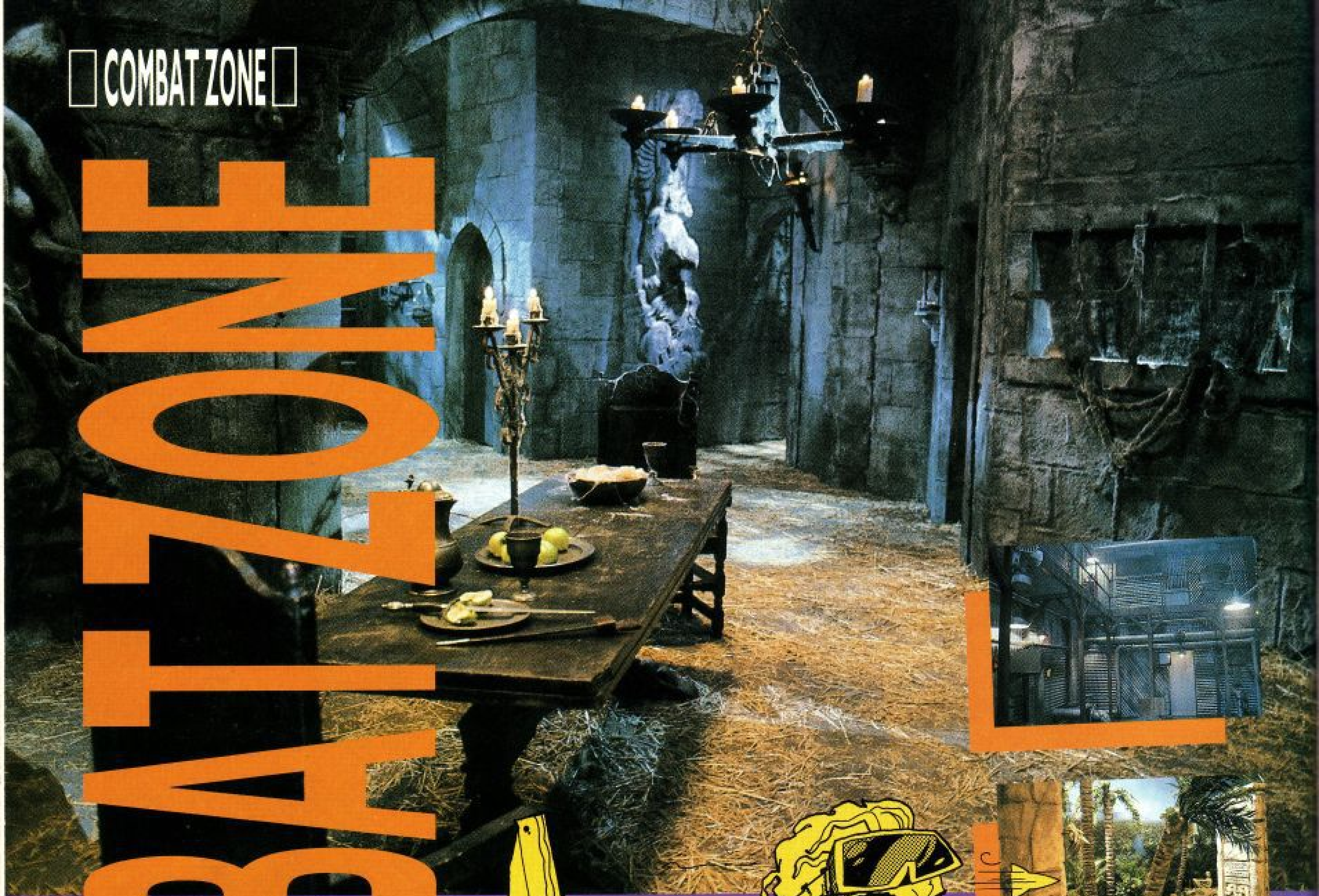
"GET YOUR TEETH INTO THIS GAME AND YOU'LL SOON FIND YOUR SELF WELL AND TRULY ADDICTED!" C + VG 87%

SCREEN SHOTS ARE FROM THE AMIGA VERSION

EMPIRE

Empire Software, 4 The Stannets, Laindon North Trade Centre, Basildon, Essex SS15 6DJ
Tel: 0268 541126 Fax: 0268 541125

COMBAT ZONE





This month ACU's coin-op correspondent John Cook gets himself down to the Blackpool seafront to visit the recent arcade exhibition and gets to visit the Crystal Maze!

If there's anything more depressing than Blackpool out of season, just don't tell me about it! Like a scene out of a 70's disaster movie, empty streets and deserted arcades make you think that maybe a mystery virus has wiped out the inhabitants. It's cold, damp and windy – but in the famous Winter Gardens, all is sweetness and light, 'cos there are thousands of vids, all on freeplay. We selected the wheat from the chaff, just for you!

Were you one of the chosen who stayed up to the wee hours watching the Super Bowl in January? Weren't we all rewarded with a cliffhanger of a game that set the pulse racing the breath holding and the Budweiser flying, eh?

OK, so Buffalo lost – I can take de-

feat, humiliation and the consequent transfer of funds that ensued, particularly now that I can go down to the local arcade and replay the whole thing, only make sure I don't miss the 48 yard field goal.

It has to be said that decent American Football games have been a little thin on the ground recently though. A few years back we had **10 Yard Fight** and the multi-player fans were treated to **Temco Bowl** in '88, but, y'know, there's never really been one that stood out as completely marvellous. Until now.

Enter please, from Williams, **High Impact** – the game that, so they claim, "brings football to life with the energy and strategy of a non-stop highlight film!" It certainly looks like someone has taken the production and presentation values of something like Cinemaware's **TV Sports Football** and transferred them to the coin-op area, with the extra graphics and sound that can be used therein. Good stuff, you might think and you'd be right.

High Impact makes an impression because Williams has packed megabytes worth of digitised graphics into the machine and uses these images in favour of the usual sprite technology. This gives the main playfield – a scrolling left/right screen – a very distinctive look that grabs the eye immediately.

But what about the gameplay? Well, it's not too difficult to pick up, assuming you are conversant with the rules and subset of English language used in the game. The **Blitz** option, for example, does not necessitate dropping large amounts of high explosive on the London Metropolitan area – but ends up being almost as violent and just as noisy.

Play selection is made via some easy to use sub-menus and then you – or you plus a friend – control a nominated player on the field. Snap the ball and the usual free-for-all ensues, with a digitised, animated ref calling the shots and likewise a Head Coach jumping up and down, expressing strong emotions over each decision. Nice stuff.

With up to 4 players catered for, bags of humour, sound and gameplay, this is the nearest any of us are likely to get to the Superbowl. If you enjoy watching American football and like the idea of playing it for real, save yourself severe physical punishment and go for High Impact.

Atari's new game, Ramparts, which we mentioned briefly last time was on display again and after some extensive playtesting our initial giggles and barely suppressed mirth have grown into a sneaking intrigue and curiosity. Personally, I still think that whoever authorised burning those ROM's needs intensive therapy involving extended bed rest and consumption of much Lucozade, but still there do seem to be those that enjoy playing this hybrid.

A cross between Missile Command and Tetris? Well, that's the simple way to explain things – probably worth a try if only to see a quintessentially Californian mind at work.

One of the few new coin-ops on display was the long awaited Robocop II from Data East. The bad news, they seem to have put a new graphic artist on the job. Yes, sadly, rather as the follow-up movie was a bit dull compared to the original, the follow-up coin-op doesn't offer anything new – in fact could be said to be a little inferior, on initial play.

Sure, there have been some additional gameplay features added – now as well as a horizontal scroll there are times when your sprite faces into the screen and fires at targets, similar to games like Cabal. You can also have the satisfaction of picking enemies up by the throat.

But when it comes down to simply delivering the goods – Robocop II just doesn't manage to do like the original did. On the positive side, there's a lot of use of good digitised pictures and sound from the movies – but if you feel the need to check it out for yourself, expect some disappointment.

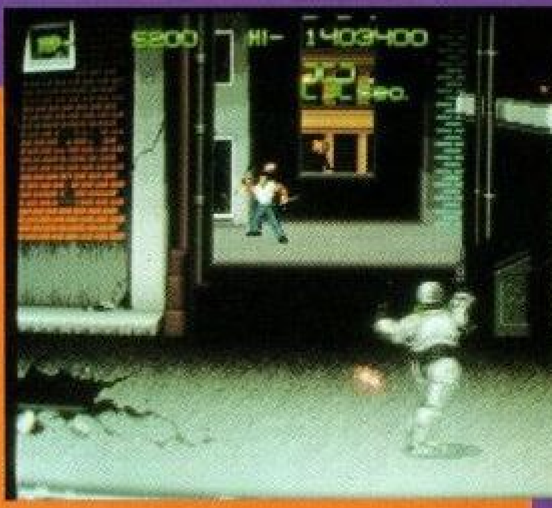
Finally, in a month that's brought little new to the arcades, how about playing a game of Crystal Maze as a coin-op? Interested? Then maybe Blackpool has something for you after all.





Crystal Maze is, of course, a game show that consistently topped the Channel 4 charts, by running teams of yuppies through different Zones, with co-operative puzzles in each Zone. Now you can do it for real, thanks to a company called Cyberdrome, in a unique computer moderated environment.

Like the TV series, there are four zones, but instead of Richard O'Brien leading you from game to game (there are about 40 in all, half based on computer – coded by industry veterans Level 9 Computing – half physical), your progress is monitored by a central system that keeps track of you and



your team by the use of a magnetic card.

Your team pays its money (in the region of £2-3 each which gives you around 30 mins of play) and is given a coded card. Insert it in the nearest slot and you are told which game you are to play first – and hurry!

Success at the games gives you Crystal credits that you can convert into prizes when you've finished. With around £500,000 spent on the system, initial tests report that the standard of themeing and sound effects are extremely high and many of the games, highly original and fun.

For example – one of you is crawling around a maze, with your progress being monitored by pressure sensors and displayed on a TV screen outside. But there is an invisible monster in the maze that you can't see – although it shows up on the monitor outside! Guided by the incoherent screams of your companions, you have to find a way around the monster to get the Crystal, then escape!

David Owers of Cyberdrome is confident that Crystal Maze will be a success – and is also currently looking for backers for other Crystal Maze projects at other sites around the country. If you've got cash to invest in a hi-tech project, then call him on 0253 711811.

SOFTWARE CITY

CALL US ON:
0902 25304

SOFTWARE CITY
Unit 4, Business Development Centre
21 Temple Street, Wolverhampton WV2 4AN
TEL: (0902) 25304 FAX: (0902) 712751

BUDGET TITLES

Title	Price
2 Player Soccer Squad	NEW £2.99
2 Player Super League	£2.99
720	£2.99
1942	£2.99
Academy	£2.99
Ace	£1.99
Airwolf	£2.99
Antiriad	£2.99
Arkanoid	£2.99
Arcade Fruit Machine	£2.99
Barbarian	£2.99
Barbarian 2	£3.99
Batman The Caped Crusader	£2.99
Battleships	£1.99
Bombjack	£2.99
Boulderdash 4	£2.99
The Boxer	£2.99
Boxing Manager	£2.99
British Super League Football	£2.99
Buggy Boy	£2.99
California Games	£3.99
Championship Golf	£2.99
Chuck Yeager	£2.99
Chuck Yeager Disc	£6.99
Chuckie Egg 1 or 2	£3.99
Classic Punter	£2.99
Classic Trainer	£2.99
Commando	£2.99
Continental Circus	NEW £2.99
Country Cricket (D&H)	NEW £2.99
Crazy Cars	£2.99
Cup Football	£2.99
Daley Thompsons Decathlon	£2.99
Daley Thompson's Olympic Chall.	£2.99
Dan Dare 2	£2.99
Defenders of the Earth	£3.99
Dizzy In Fantasy World	£2.99
Dizzy Dice	£1.99
Driller	NEW £2.99
Eliminator	£2.99
Empire Strikes Back	£2.99
Enduro Racer	£2.99
F1 Tornado	NEW £2.99
Fast Food	£2.99
Football Champions	£2.99
Football Manager	£2.99
Frank Bruno	£2.99
Frankenstein Jnr.	£2.99
Fruit Machine Sim 1 or 2	£2.99
Gary Linekers Hotshots	£2.99
Gauntlet 1 or 2	£2.99
Gemini Wing	NEW £2.99
Graham Gooch	£2.99
Ghosts and Goblins	£2.99
Ghostbusters	£1.99
Great Escape	£2.99
Green Beret	£2.99
Greg Loses Clock	£2.99
Grid Iron 2	£2.99
Head Over Heels	£2.99
Hong Kong Phooey	£2.99
Hypersports	£2.99
Ikari Warrior	£2.99
International Football	£2.99
International Manager	£2.99
Jack the Nipper 2	£2.99
Jet Set Willy	£1.99
Joe Blade 3	£2.99
Kenny Dalglish Soccer Manager	£2.99
Kentucky Racing	£2.99
Kickstart 2	£1.99
Kwik Snax	£2.99
League Challenge	£1.99
Little Puff	£2.99
Live And Let Die	£2.99
Macadam Bumper (Pinball)	£2.99
The Manager	£2.99
Manic Miner	£2.99
Matchday 1 or 2	£2.99
Matchpoint	£2.99
Mike Reid's Pop Quiz	£2.99
Monty On The Run	£2.99
Motorcycle 500	£2.99
Nemesis	£2.99
Nigel Mansell Grand Prix	£2.99
Ollie And Lisa 3	£2.99
On The Bench	£2.99
Operation Gunship	£2.99
Operation Wolf	£2.99
Outrun	£3.99
Paperboy	£2.99
Powerplay	£1.99
Postman Pat	£1.99
Postman Pat 2	£2.99
Pro Golf (Codemasters)	£2.99
Pub Trivia	£2.99
Question Of Sport	£2.99
R-Type	£2.99
Rambo 3	NEW £2.99
Real Ghostbusters	NEW £2.99
Renegade	£2.99
Roadblasters	£2.99
Rolling Thunder	£2.99
Rugby Coach	NEW £2.99
Rugby Manager	£2.99
Ruff And Ready	£2.99
Run The Gauntlet	£2.99
Saboteur 1 or 2	£1.99
Salamander	£2.99
Sam Fox Poker	£2.99
Scooby Doo	£1.99
Soccer Director	£2.99
Soccer Seven	£2.99
Soccer Q	£2.99
Soccer Star	£2.99
Space Harrier	£2.99
Spy Hunter	£2.99
Spy V Spy	£2.99
Starwars	£2.99
Street Fighter	£2.99
Striker	£2.99
Summer Games	£2.99
Super Cycle	£2.99
Super Hang-On	£2.99
Super Nudge 2000	£1.99
Super Stock Cars	£2.99
Target Renegade	£2.99
Technocop	NEW £3.99
Tetris	£2.99
Thunderblade	£3.99
Thundercats	£2.99
Tiger Road	£3.99
Top Cat	£2.99
Top Gun	£2.99
Trap Door 1 or 2	£1.99
Treasure Island Dizzy	£2.99
U.S. Basketmaster	£2.99
Vigilante	NEW £3.99
WEC Le Mans	£2.99
Wembley Greyhounds	£2.99
Wonderboy	£2.99
World Class Leaderboard	£2.99
World Games	£2.99
World Soccer	£2.99
Yes Prime Minister	£2.99
Yogi and the Greed Monster	£2.99
Yogi Bear's Great Escape	£2.99

SOFTWARE CITY SPECIALS

Title	Price
Afterburner Disc only	NEW £2.99
Cholo	£0.99
Deactivators	£0.50
Deep Strike	£0.99
Football Director	NEW £2.99
Hammerfist	NEW £3.99
Hive	£0.50
Jewels of Darkness Adv Comp	NEW £4.99
Kinetik	£0.50
Live And Let Die	£1.99
Mega Apocalypse	£1.99
Mystery On The Nile	£0.50
Myth	NEW PRICE £2.99
Ninja Spirit	£3.99
Passing Shot	£2.99
Question Of Sport	£2.99
Question Of Sport (Disc)	£3.99
Rasputin	£0.50
Shackled	£2.99
Silicon Dreams Adv. Comp	£4.99
Space Harrier 2	£2.99
Starstrike 1 & 2	£1.99
Super Scramble Sim	NEW £2.99
Thunderbirds	£2.99
Tusker	£2.99

FULL PRICE	CASS	DISC
Back To the Future 2	£7.50	£9.99
Battle Of The Bulge	£8.99	£9.99
Bloodwych	£6.99	£9.99
Carrier Command	£9.99	£11.99
Crete 1941	NEW £8.99	£9.99
Chips Challenge	NEW £7.50	£10.99
Cricket Captain	£6.99	N/A
Cricket Master	£6.99	N/A
Dan Dare 3	£6.99	£9.99
Dragon Breed	£6.99	£9.99
Dragons Of Flame	£7.50	£9.99
The Duel (Test Drive 2)	£6.99	£9.99
E.S.W.A.T	NEW N/A	£10.99
Emlyn Hughes	£6.99	£9.99
Escape Planet Robot Monsters	£6.99	£9.99
Football Director 2 (128k)	N/A	£13.99
Football Manager 2 + Expansion	£6.99	£9.99
Fun School 3 (5-7)	NEW £8.99	£11.99
Golden Axe	£7.50	£9.99
Grand Prix (D&H)	£6.99	N/A
Grand Prix Circuit	£7.50	£11.99
Gunboat	NEW N/A	£11.99
Gunship	£9.99	£13.99
Kick Off 2	£6.99	N/A
Lords Of Chaos	£6.99	£9.99
Lotus Esprit Turbo Challenge	£7.50	£9.99
Manchester Unt	£6.99	£9.99
Midnight Resistance	£6.99	£9.99
Monty Python	£6.99	£9.99
Mystical	NEW £7.50	£10.99
New Zealand Story	£6.99	£9.99
Ninja Remix	£6.99	N/A
Operation Thunderbolt	£6.99	£9.99
Rainbow Island	£6.99	£9.99
Rick Dangerous 2	£6.99	£9.99
Robocop 2 (cartridge only)	£21.99	£21.99
Shadow Warriors	£6.99	£9.99
Sim City	£8.99	£12.99
Snowstrike	£7.50	£9.99
The Spy Who Loved Me	N/A	£9.99
St. Dragon	£7.50	£9.99
Stun Runner	N/A	£9.99
Super Off Road Racer	£7.50	£9.99
Subbuteo	£6.99	N/A
Teenage Mutant Hero Turtles	£8.99	£11.99
Time Machine	£6.99	£9.99
Total Recall	£7.50	£10.99
Trivial Pursuits	N/A	£13.99
Turrican	£6.99	£9.99
The Untouchables	£6.99	£9.99
Welltris	£7.50	£10.99

COMPILATIONS

DIZZY COLLECTION
DIZZY, FAST FOOD, FANTASY WORLD DIZZY, TREASURE ISLANDS DIZZY & MAGIC LAND DIZZY
CASS £6.99

FIST OF FURY
DOUBLE DRAGON 2, SHINOBI, DYNAMITE DUX, NINJA WARRIORS
CASS £9.99 DISC £16.99

MEGA HOT
A.T.V., SIM, PINBALL SIM, BMX SIM, PRO TENNIS SIM, INT. RUGBY SIM, MIG 29, FRUIT MACHINE SIM & G. PRIX SIM
CASS £6.99

CHALLENGERS
FIGHTER BOMBER, PRO TENNIS TOUR, KICK OFF & STUNT CAR RACER
CASS £9.99 DISC £13.99

SOCCER MANIA
FOOTBALL MANAGER 2, MICROPROSE SOCCER, FOOTBALL MANAGER WORLD CUP EDITION & GAZZA'S SUPER SOCCER
CASS £9.99 DISC £11.99

HOLLYWOOD COLLECTION
ROBOCOP, INDIANA JONES LAST CRUSADE, BATMAN THE MOVIE & GHOSTBUSTERS 2
CASS £9.99 DISC £13.99

WHEELS OF FIRE
HARD DRIVIN', CHASE H.Q., POWERDRIFT & TURBO OUTRUN
CASS £9.99 Disc 16.99

SEGA MASTER MIX
SUPER WONDERBOY, DYNAMITE DUX, CRACKDOWN, TURBO OUTRUN & ENDURO RACER
CASS £11.99 DISC £13.99

T.N.T.
HARD DRIVIN', TOOBIN, DRAGON SPIRIT, XYBOTS & A.P.B.
CASS £9.99 DISC £16.99

PLATINUM
STRIDER, GHOULS AND GHOSTS, BLACK TIGER, FORGOTTEN WORLDS & L.E.D. STORM
CASS £10.99 DISC £13.99

KARATE ACE
WAY OF THE EXPLODING FIST, BRUCE LEE, KUNG FU MASTER, AVENGER, UCHI MATA, SAMURAI TRILOGY & WAY OF THE TIGER
CASS £5.50

HEROES
BARBARIAN 2, RUNNING MAN, STAR WARS & LICENCE TO KILL
CASS £9.99 DISC £13.99

BIG BOX
FRANK BRUNO'S BOXING, BATTY, BOMBJACK, SCOOBY DOO, BATTLESHIPS, SABOTEUR, AIRWOLF & GHOSTS AND GOBLINS
CASS £5.50

THE BIZ
R-TYPE, OPERATION WOLF, DOUBLE DRAGON, BATMAN THE CAPED CRUSADER
CASS £9.99

SUPREME CHALLENGE SOCCER SPECTACULAR
PETER BEARDSLEY'S INT. FOOTBALL, SOCCER SUPREMO, FOOTBALL MANAGER, WORLD CHAMPIONS AND PETER SHILTON'S HANDBALL MARADONA
CASS £4.99

SUPREME CHALLENGE
ELITE, STARGLIDER, ACE 2, SENTINEL AND TETRIS
CASS £5.50

THRILLTIME GOLD 1
PAPERBOY, GHOSTS AND GOBLINS, BOMBJACK, BATTY & TURBO ESPRIT
CASS £6.99

THRILLTIME GOLD 2
AIRWOLF, SCOOBY DOO, BATTLESHIPS, SABOTEUR & FRANK BRUNO
CASS £6.99

THRILLTIME GOLD 3
COMMANDO, 1942, SPITFIRE, COMBAT LYNX & DEEP STRIKE
CASS £6.99

THRILLTIME PLAT 1
BUGGY BOY, SPACE HARRIER, LIVE AND LET DIE, OVERLANDER, DRAGON'S LAIR, THUNDERCATS, BEYOND THE ICE PALACE, GREAT GURIANOS, HOPPING MAD & IKARI WARRIORS
CASS £8.99 DISC £13.99

WINNERS
THUNDERBLADE, L.E.D., STORM, BLASTEROIDS, INDIANA JONES & THE TEMPLE OF DOOM & IMPOSSIBLE MISSION 2
CASS £9.99

FLIGHT ACE
AIR TRAFFIC CONTROL, ACE, SPITFIRE 40, STRIKEFORCE HARRIER, TOMAHAWK & A.T.F.
CASS £8.99

STORY SO FAR VOL 2
OVERLANDER, SPACE HARRIER, HOPPIN'MAD, BEYOND THE ICE PALACE & LIVE AND LET DIE
CASS £5.50

STORY SO FAR VOL 4
GHOSTBUSTERS, EIDOLON, ALIENS, WONDERBOY, BACK TO THE FUTURE & QUARTET
CASS £6.99

BLANK 3" DISCS AMSOFT/MAXELL

Qty	Price
1	£2.75
5	£12.99
10	£22.99

ORDER FORM AND INFORMATION

All orders sent **FIRST CLASS** subject to availability. Just fill in the coupon and send it to: Software City, Unit 4, B.D.C., 21 Temple ST, Wolverhampton. WV2 4AN.

ORDER FORM (Block Capitals)

NAME: ____________________

ADDRESS: ____________________

POSTCODE: __________ TEL: __________

Name of Game	Computer	Value
	Postage	
	TOTAL	

POSTAGE RATES: Please add 50p for post & packaging on all orders under £5. Overseas add £1.50 per item.
PAYING BY CHEQUE: Cheques payable to **Software City**

Card Type __________

Expiry date __________

Signature __________
Date __________

European Orders Mastercard

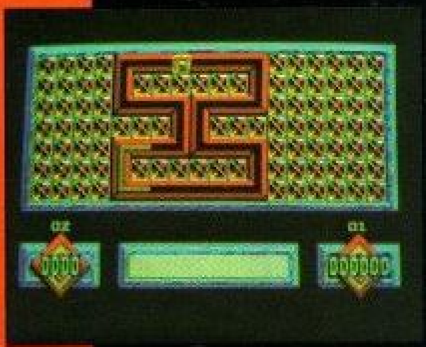
Get your blasting hands ready as ACU takes on the Chicago creepy crawlie brigade in Exterminator, goes totally loopy over Loopz and picks up the gauntlet thrown down by the epic Chip's Challenge

GAMEPLAN



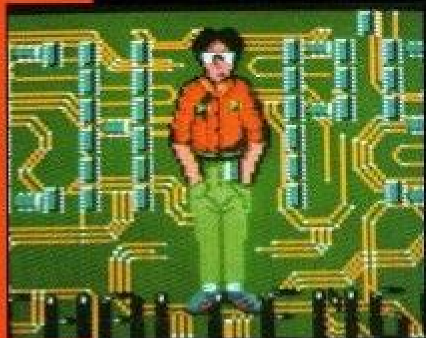
EXTERMINATOR

Zap the bees, crush the frogs and clear out if you can



LOOPZ

It's a mad, mad, mad, mad, mad world. Or so they say.



CHIP'S CHALLENGE

Are you good enough to join Melinda's Bit Busting squad?

PLUS

Find illumination in The Light Corridor, sink to the depths of Welltris, stand up and be counted in Line of Fire and try the might of five more superb blasts from the budget basement.

TOP 20

1	(1)	Teenage Mutant Hero Turtles	Mirrorsoft
2	(2)	Double Dragon	Mastertronic
3	(10)	Operation Wulf	Hit Squad
4	(13)	Dizzy Collection	Code Masters
5	(5)	Target Renegade	Hit Squad
6	(3)	Quattro Adventure	Code Masters
7	(16)	Yogi and the Greed Monster	Hi Tec
8	(7)	Out Run	Kixx
9	(NE9)	F1 Tornado	Zepellin
10	(6)	Quattro Arcade	Code Masters
11	(8)	R-Type	Hit Squad
12	(11)	Barbarian 2	Kixx
13	(NE)	Top Cat in Beverly Hills Cats	Hi Tec
14	(NE)	Batman (The Caped Crusader)	Virgin
15	(NE)	Silkwork	Mastertronic
16	(NE)	Big Box	Beau Jolly
17	(NE)	Tomahawk	Byte Back
18	(NE)	Return of the Jedi	Hit Squad
19	(NE)	Fighter Pilot	Byte Back
20	(NE)	Treasure Island Dizzy	Code Masters

Last month's position in brackets



Mystical

Assuage the wizard's anger or forget your diploma for good.

Life as a trainee wizard has its bad moments. By sheer coincidence you have just encountered one of these. There you were, testing out your hard-earned skills on a door opening exercise, when suddenly and quite by accident, you manage to fling every single phial and scroll belonging to the great wizard through a strange portal that you happened to open up into a parallel universe.

Not something that happens every day, admittedly, but when it does, you can be sure that your master is going to be pretty sore. In fact, he's so sore, that if you don't get out there and recover his valuables, you'd better forget being a magician and take up window cleaning.

so, as you might have guessed, the object of Mystical is to go out and take on everything this weird and wonderful parallel world can fling at you in a desperate bid to find the phials, and it's not half a bad adventure either.

Starting out in this one or two player game, your character is followed by a dark shadow; the Golem. If you want a friend to play, hit fire before he disappears and you're both on your way.

If you're on your own, the Golem can come in very handy in helping to get rid of the many adversaries you will meet upon your way. By jumping up and down, he can crush many a nasty you might have missed with your spells.

By avoiding or killing the host of baddies, be they wicked clerics or goofy ghoulies, you must collect as many phials and scrolls as you can. Pressing space as you pass over spells will allow you to store them in your pouch. If not, a few seconds after you pass over them, you can use the spell to eliminate your opponents.

As you near the end of each stage, you will encounter a small pentacle. Getting into this is a necessity to move on. However, blocking your way at every level, is a fiendish god of this parallel universe, cram-packed with magic and not afraid to use it on you.

Defeating the gods is really a matter of trial and error. Select the appropriate spells from your pouch using the space bar and fire away.

All in all, there are 12 different stages of this superb action/adventure, set over four very different worlds, each with its own particular brand of hostiles.

Throughout the game, the Grand Wizard is watching over you, ready to grant some very handy extra lives and to transport you between dimensions when necessary. However, don't rely too much on his help. Mess up and you're in big trouble.

At the end of each world, take a stock of your spells, using the inventory and trust your own judgement as to which ones you will need in the next stage.

All in all, Mystical is a very enjoyable offering. The graphics are exceptional and the vertical scrolling is smooth. There are some neat sound effects and for those of you who like your action at a fairly leisurely pace, Mystical should fit the bill nicely.

Not too fast and never boring, Mystical is fun in a sort of cutesie way that should sppeal to most serious gamesters.

John Taylor



ROUND-UP			
NAME	Mystical		
FROM	Infogrames	PRICE	Disk £14.99 Cassette £9.99
82%	78%	79%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Loopz

Get yourself out of this little fix if you can.



Puzzles, puzzles and more puzzles. Yet this one will have you going around in circles at no small rate. Loopz is the name and making loops is the game, with three different formats to choose from and varying difficulty levels from easy-peasy to take me away now, please.

Yep, real brain-bashing stuff here, but it all seems so harmless to start off with.

Set the difficulty level to 0 on game A and you start off with the smallest of loop sections. All you have to do is manoeuvre it around the playing board until you've found a pretty spot for it, twist it around, using the joystick, and then add other bits to it to form connecting loops. Piece of cake.

Not surprisingly, the pieces do become a little more irregular as you play and the time you are allowed to mess around with each piece gets smaller, so put in plenty of practice before you challenge a friend.

Obviously, the larger the loop you create, the more points you score. Indeed, there are numerous Bonus games interwoven into each of the different stages, which will give you handy top up lives as well as extra points.

A staggering 100,000 points can be earned if you manage to complete a loop covering all 126 tiles on the board at level 9. Sound impossible? Well, it sure ain't easy. Clearing the board completely will also give you extra points, which vary on the target set by the multiplier in the bottom left hand corner.

In game B, the level you play at will increase for every 10 loopz you complete. Tricky, but if you manage to complete a loop filling 63 tiles, you can qualify for another bonus game which takes a random puzzle from Game C and gives you a set time to complete to earn the goodies.

As you might have guessed, Game 3 consists of 50 screens of random loopz. Each time you see one, certain parts of it will disappear, leaving you to carefully reconstruct it within the allotted time.

Playing Loopz on your own is a reward in itself, just as long as you don't panic when things start hotting up. The graphics are clean and the neat background music won't drive you to distraction.

However, for a real humdinger of a battle, you'll certainly get the best out of Loopz by playing it with a friend.

Taking alternative turns in Games A and C and battling together in Game B to create your masterpieces is superb fun and enfuriantingly addictive.



The more you play, the more you will become accustomed to the playing pieces, so you'll know just where to leave gaps and what sizes to put aside. Don't rely too much on luck, though. It does you no good to have too many spare pieces lying around taking up valuable space and clogging up your playing area.

Make good use of the Gophers that come up from time to time. They'll help to correct any mistakes you've made and enable you to go on to even better things in this excellent offering.

Jim Johnson

ROUND-UP			
NAME	Loopz		
FROM	Audiogenic	PRICE	Disc £14.99 Cassette £9.99
84%	82%	92%	TNT
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Alexey Pajitnov has got a lot to answer for you know. Having brought us all to our knees with the brain-numbing exercise of Tetris, he's now gone one step further and thrown us all down a well without a rope to climb out with. Well, play a few rounds of Welltris and that's how you'll feel.

Welltris

Fathom out the intricacies of the Russian mind if you can.

If you have already mastered Tetris, then the ground rules of its successor will be all too clear to you. If you haven't, then I suggest a lot of practice is in order.

First of all, though, you'll have to leaf through the manual to get through the protection sequence by correctly inputting data about Russian Republics. Right, now on with the fiendish game itself.

The idea, of course, is to manipulate playing blocks down the sides of the well into which you are peering, so that they fit alongside other pieces at the bottom.

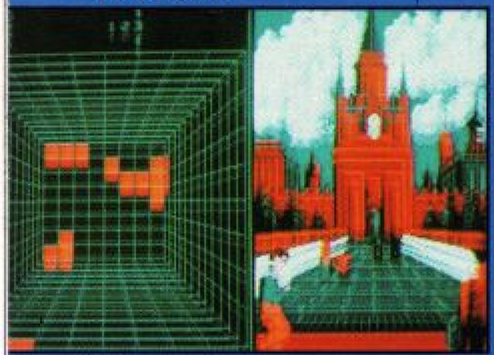
Form a vertical or horizontal line and it disappears, giving you room to do more of the same.

The playing blocks themselves can consist of two, three, four or five segments, depending on the difficulty level you have selected. For novices, forget about the five segment pieces to start with and stay firmly on difficulty level one.

Another firm suggestion would be to stick to the lowest speed possible until you have built up a bit of confidence. You can also cheat a little by pressing NEXT, which allows you a sneak preview of the next piece you have to fit into your schemes, although it does subtract from your score.

Play around with the blocks for a while until you get used to the simple-seeming movements. Remember, as long as the block is still on the wall, you can move it wherever you want. Once it touches the floor, you're stuck with that shape.





If you're not careful, a segment of the block will be left protruding up the wall, and what happens then? It freezes you out. The wall is then out of bounds for three turns, making things decidedly difficult.

The more walls you block, the more impossible it becomes to make even your best strategies work out and, if the blocks build up too high, or you manage to block all four walls, the game is over.

Bascially, make sure you've got your thinking noddle on before even thinking about giving Welltris a spin. It can be over all too quickly for the unprepared but, take it easy, think about where each block will stop along the bottom and prepare moves in advance, and you could well see things beginning to shape up nicely.

Build wisely and you should be able to remove many lines at once and, if you always prepare for the larger pieces, you should find the smaller ones falling nicely into place between them.

Lesson over, now it's up to you. Welltris is superbly presented, with some excellent decorative backdrops and easy to understand menu beside the playing arena. They won't, thankfully, disrupt your concentration and you can toggle off the sound for optimum effects.

If you like the attraction of an ongoing strategy to blow your mind, Welltris should fill the void left after Tetris very nicely indeed.

John Taylor

		ROUND-UP	
NAME	Welltris		
FROM	Infogrames	PRICE	Disk £14.99 Cassette £9.99
84%	80%	88%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

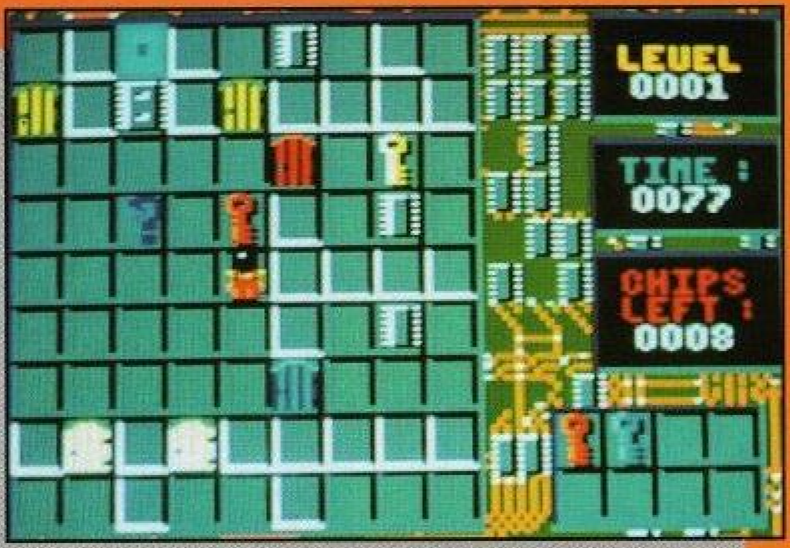
Chip's Challenge

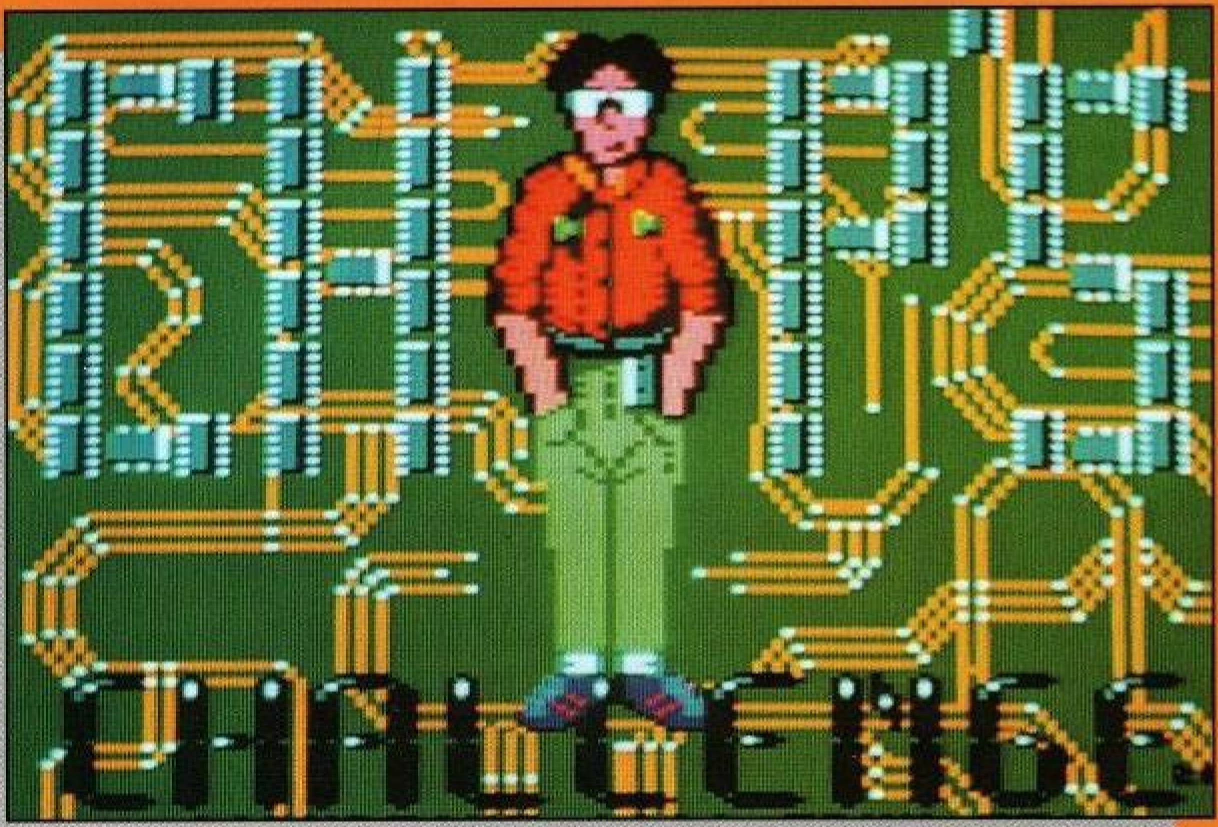
Come on nerdy, you'll have to do better to get into the Bit Busters club.

Poor old Nerdy Chips McCallahan. He just can't seem to do anything right. All he wants to do is make friends, especially with Melinda the Mental Marvel, and he'd give his left arm to be able to join the elite Bit Busters Club.

Can you help him out? I think so, and it won't just be a labour of love either.

From the very start, Chip's Challenge will have you wanting more of the same, but don't worry, you'll get it.





The aim of the game is to overcome a series of tests laid down by the club. Sort out the puzzles and you might get to be a member.

Lesson one is a doddle to lead you in to the proceedings. Just collect the appropriate keys, open the doors, pick up the microchips and move towards the big blue, flashing finishing post.

Done it? I thought so, but don't get too confident, this is only just the beginning.

As you move onwards, the puzles become more and more intricate, and, to make matters worse, on many of the levels, there are set ways of achieving success. Work them out and you're through, get it wrong and it's back to the beginning again, Nerdy!

Each of the staggering 144 levels is set against the clock, which is easy to beat at the start. Finish a level first time around and you get full bonus points but, each time you have to restart, the bonus drops, so make a map, or keep a careful check on where you went wrong.

To make matters worse, some levels include transparent walls, traps, monsters, forcefields and walls of fire and water. Admittedly, you can find protection against many of them scattered around, but you may have to find them in the right order, or a very unhelpful thief could steal your gear and leave you stranded.

Pushing black blocks onto water will create mud banks to help you through various obstacles, so try not to push them into inaccessible corners.

It really is a matter of carefully does it. Experiment with toggle switches and trip buttons to knock out clones and try to make your quotas of chips.

By about level eight, things should start to hot up a bit and this is where the game is at its level best. The puzzles are very tricky and you might have to come up with some bizarre solutions to get through.

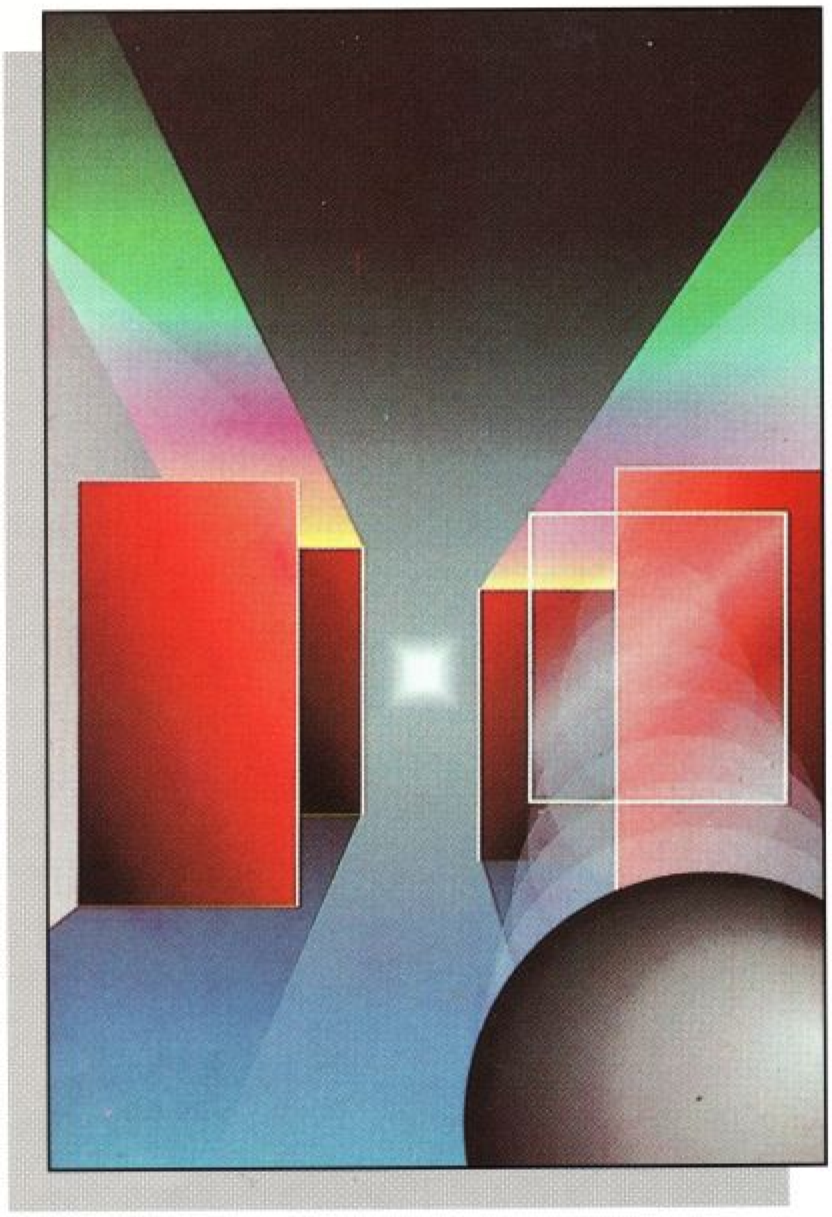
Your overall view of proceedings may be a little on the small side, but the graphics are marvellously clear and the scrolling is pretty smooth. The soundtrack is very jolly, although it may get a little too much after a while but, above all else, the gameplay of Chip's Challenge is brilliant and totally addictive. If at first you don't succeed, you're going to want to keep on trying until you do.

You certainly won't get bored with this one for some time, so for exceptional value for money, go out and take up the challenge now.

Brad Fisher

ROUND-UP

NAME	Chip's Challenge		
FROM	US Gold	PRICE	Disk £14.99 Cassette £9.99
89%	88%	95%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

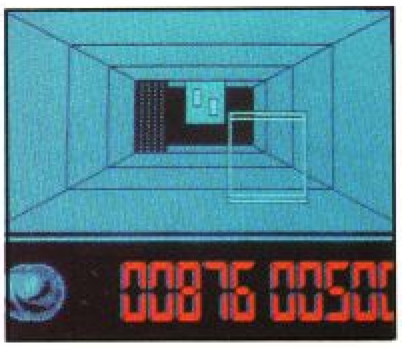


The Light Corridor

Find enlightenment in the shape of a ball and a racket.

"Get ready!" Equipped with some marvellous speech samples, The Light corridor is one of those very highly polished offerings that has you appreciating the programmer's work at the same time as trying desperately to defy it.

The game objective itself couldn't be simpler; all you have to do is guide your ball down the corridor, between obstacles, using your racket and, for the first few levels, it's a pushover.



With only a couple of barriers to avoid, knocking the ball around doesn't cause too much of a problem. Pick up the special bonusses for extra lives and dual racket play and you'll soon find yourself advancing at a rate of knots.

The first level is relatively easy, just hit the target square within the time limit and you're through. From here on in, you're on your own.

As with most simple games, The Light Corridor is incredibly addictive, but what gives it the edge over many other games, is the host of options for you to play around with.

Naturally, you can alter the speed of your progress, but apart from that, there is a very handy level change option. If you can remember the four digit code of each level, which is displayed shortly after starting it, you can restart at that level again if you happen to get caught short, which you undoubtedly will once you start progressing.

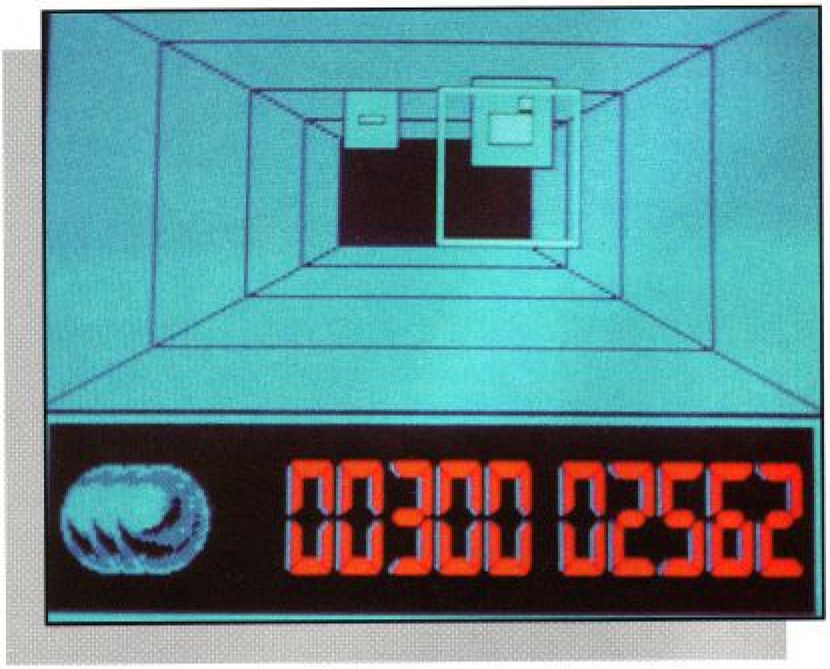
On top of that, there is the two player option, allowing you to challenge a friend to this epic offering, using two joysticks or joystick and keyboard.

If, by any remote chance, you should get bored with the existing corridor, or if you manage to conquer the wily programmer's layout, the corridor editing option will allow you to build your own, with all of the obstacles at your dispostal to make it as easy or excruciatingly difficult as you like. The choice is yours. Save it and let your friends have a bast at it.

There's even a separate scoreboard to mark your progress on your own creations, though getting all of the high scores without any competition might get a little monotonous.

No, The Light Corridor is all about challenges. Take up the gauntlet yourself first and see how far you can get, then take on a friend and then set your own limits for the ultimate enjoyment.

Using excellent 3D graphics, with some smart sound effects and digitised speech, The Light Corridor is a joy to play. Simplistic in its outlook, the game has many hidden secrets which need to be uncovered before you can finally reach the ultimate illumination at the end of the tunnel.



For sheer all round entertainment, this is one offering that will be very hard to beat. Get it now and start challenging.

Chris Knight

ROUND-UP			
NAME	The Light Corridor		
FROM	Infogrames	PRICE	Disk £14.99 Cassette £9.99
88%	88%	94%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Line of Fire

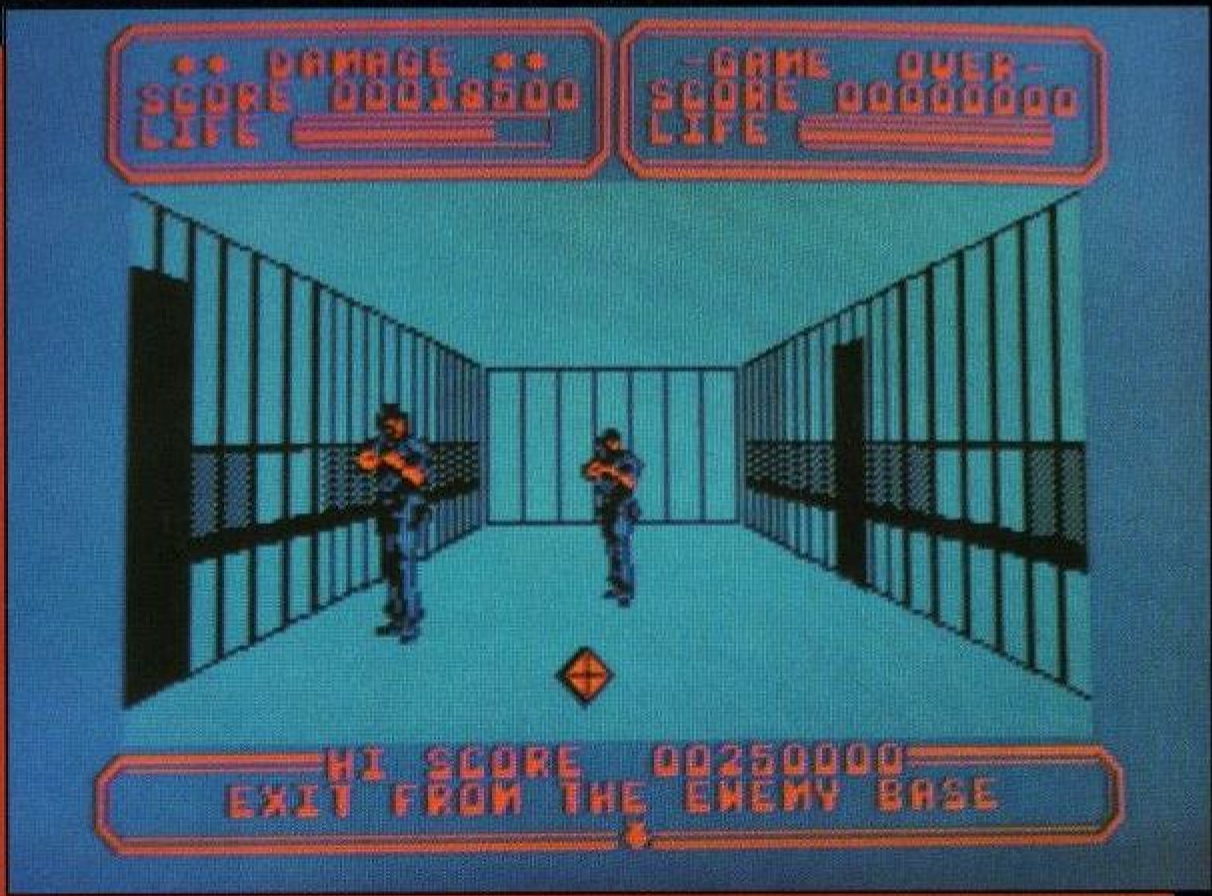
Out with brains and in with brawn on a blast-em-up back home.

"If it moves, shoot it!" Sound advice from the US Gold crew in this all-action race to get back to the safety of your own camp.

I've got no sympathy for you, though. I mean, you were the one who volunteered to go in behind enemy lines to steal that Rapier machine gun from the terrorists weren't you? What do you mean, you only went to the shops to buy the game? I don't believe that for a second.

Anyway and whatever, you are now stuck well and truly behind enemy lines, and only sheer fire power as well as a fair bit of ducking and weaving is going to see you through this pretty fair shoot-em-up.

Level one has you in possession of the all-important gun inside the enemy camp and, with unlimited fire power, take a deep breath, yell: "Gun Ho!" as loud as you can and let 'em have it.

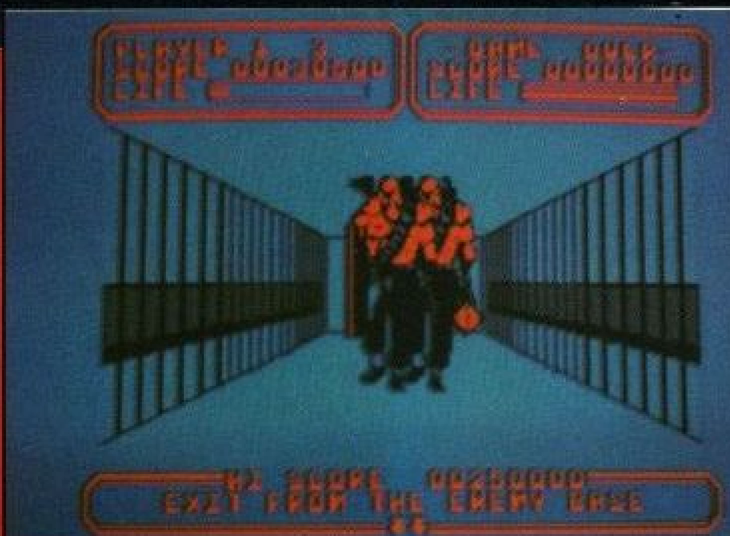


Twist and turn through the alleyways, blasting the opposition as you go and make your way to the jeep that's waiting to take you over the next arduous stage in the jungle

It's tough going, especially as you have to take out the enemy bombs from the planes and helicopters, as well as dealing with the soldiers in the bush.

Get to level three and the action is getting pretty fierce out there. Trade your jeep for a speed boat and attack the white waters, watching out for rocks as the terorists continue their aerial and ground onslaught.

Survive the perils of the water and you're doing pretty well, but can you cope with the crevices of the rocky canyon? There's a potential assassin waiting behind every rock and you'll need to be quick with your sights to get to the trigger first.



Along the same lines, the shoot-out in the ruined city is all about speed again. Beware of snipers hidden behind barrels and in doorways; if they reach the trigger first, it's all over.

We're getting pretty close to home now, so you'll have to be particularly on your guard. There's nothing worse than getting wiped out just before the end and missing out on the medals.

Jump aboard your plane and high-tail it out of that god-forsaken place. Avoid the jets, then head for the jungle again, where the enemy missiles, their last line of defence, are waiting for you.

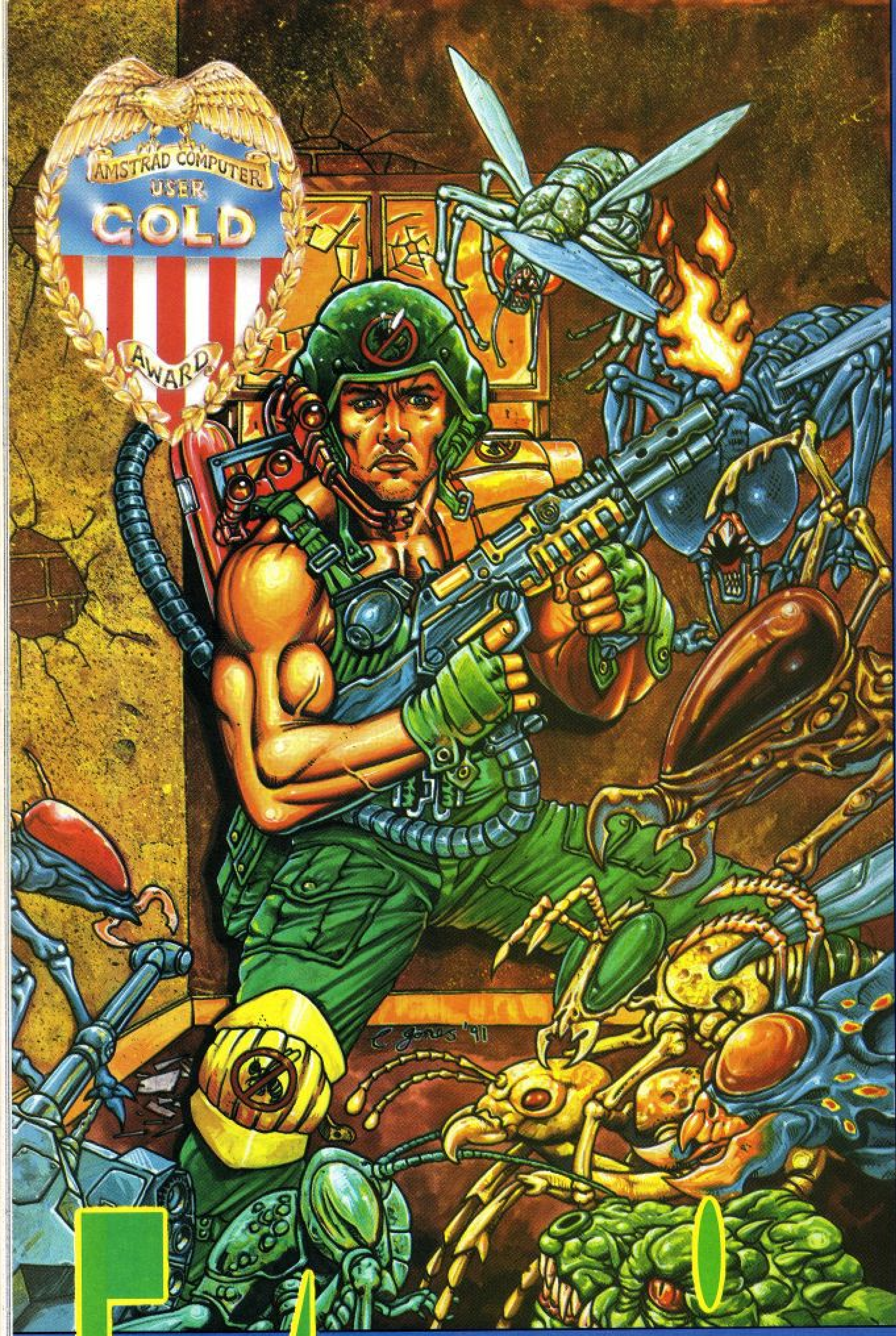
Line of Fire is a superb offering because of its sheer scope and variety. There's plenty to see and do, without getting overly repetitive. The graphics are fair and the sound effects nicely realistic. If you get into too much bother, don't forget your grenades, while the red cross boxes should sort out the minor injuries.

The gameplay is fast and, above all, Line of Fire is fun. There's no worrying about strategy, just pure, unadulterated blast action, which should keep you busy long enough to make it well worth getting hold of.

Brad Fisher

ROUND-UP

NAME	Line of Fire		
FROM	US Gold	PRICE	Disk £14.99 Cassette £9.99
80%	82%	78%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Before playing this exceptional blast from Audiogenic, I feel a brief word concerning the problem of psychosomaticism is in order. What that long word, which I won't repeat, means, is the outbreak of injuries and illnesses caused by the mind thinking about them. For example, if you see a nasty injury, you can make yourself believe you've got it too by thinking too much about it.

Now, if you feel you are one of those people who might be affected by this, then you'd better get yourself a large can of hand cream now, otherwise you'll be in all kinds of trouble after a couple of levels of Exterminator.

Lesson over, on with the blast.

Set in futuristic Windy City, Chicago, certain cul de sacs have been overrun by vermin, insects and rodents of all shapes and sizes. No common or garden pest killer could cope with this little lot. No this is a job for the big guy himself and it's up to you to make sure that he does it.

As a one player game, Exterminator is a blast-'em-up with a difference. Your screen view has you looking down the length of the particular infested room you find yourself in, with just your hand in front of you for protection.

Exterminator

Are you a common or garden pest killer? If so, you're in big trouble.





Admittedly, your hand does pack some powerful punches (if you'll pardon the expression), but considering the opposition it's got to face, that's only fair.

As you've probably guessed by now, your task is to enter each house in the street one at a time and pick off the pests from each room.

There are usually five rooms to each house, ranging from the attic to the cellar and, as you progress down the street, the vermin get nastier and bigger.

To start off with, you can expect cats, rats, tanks, frogs, tomatoes and a fair few others to do away with. And how do you do that?

With some deft use of the joystick, moving to the left hand side allows you to shoot at baddies in the distance. You'll also need to be quick with the bullets on the bonus rounds in each house.

To grab baddies in front of you, press fire when you're away from the side, but make sure you don't grab the nasty old wasp. A bad sting could cost valuable life points. A quick waggle on the joystick should shoo the wasp away for a while, but be watchful for his return!

Now comes the best part. Easily does it. Wait for the baddies to get to the front row on the pretty floor tiles, position yourself above them and then pull down the joystick whilst firing to pound them into a pulp.

Pounding is very satisfying and, for every pest pounded, floor tile sections change colour until you complete a row of tiles, signifying the end of the level.

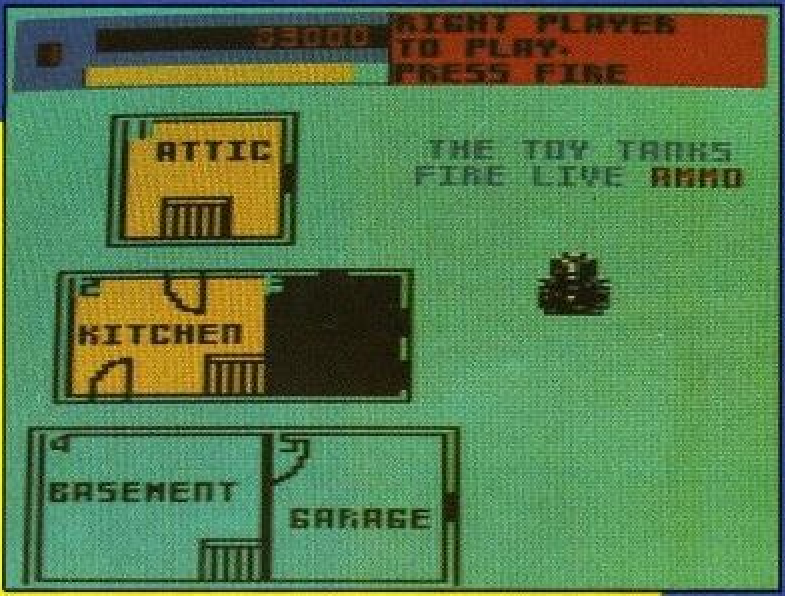
Apart from the bonus levels, there are various other goodies to be had. Picking up the can of insect repellent will boost your life points, as will the glowing timebombs if you get to them before they explode, that is.

Before each level, you are given a run down of the pests you can expect to encounter when you enter the room.

Pay careful attention to the notes, otherwise you'll be mixing up your wasps and mosquitoes and getting into awful bother.

As you progress, be prepared for the sticky spider's web and that particularly horrible juice can which has got its sights firmly set on you.

In most rounds, timing of pounds is all-important, so make sure you have a play around with the controls before you get down to serious business. Avoid the frog tongues and stay well clear of stray tank bullets as you move in for the kill, whilst keeping your other eye firmly on that pesky wasp.



Taking on the first few houses isn't overly difficult, but things do get red hot on the way to the Ultimate Challenge at the end of the street. Conserve your life points very carefully and make sure you make a grab for any bonusses you set your eyes on.

For one player, there's more than enough action for you to handle but, as a two player game, Exterminator is an absolute must.

Pressing both fire buttons, if you have the two joystick ports, will enable you and a friend to get both of the Exterminator's hands up and running in a dual-play challenge of superb proportions.

Working together can clear up a multitude of pests, making the game faster and much more enjoyable, though racing your partner for the bonusses can create a nice competitive element as well.

Using some clever graphics, Exterminator is a must for shootie freaks. It is certainly that little bit different from the run of the mill and, despite the music being a little lacklustre at times, the gameplay should hook you well and truly.

Admittedly, the vermin can get a little repetitive in the early stages but, as the pace begins to increase along with the variety of opponents, you'll begin to realise that Exterminator was worth every penny you spent on it.

So, if you fancy an excellent few hours of solid blasting, look no further.

Jim Johnson

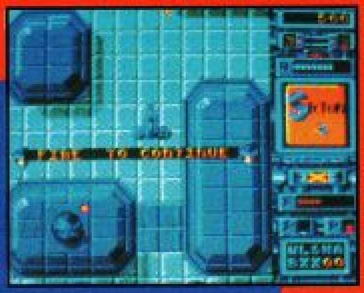
ROUND-UP			
NAME	Exterminator		
FROM	Audiogenic	PRICE	Disc £14.99 Cassette £9.99
90%	78%	95%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

Five more pocket money blasts from the heart of the popularity charts.

XENON
Hold on to your hats and get set for a non-stop, all-action futuristic blast-'em up of mega proportions.

Carefully, chopping and changing between your turbo land cruiser and your mach speed jet fighter, your task is to battle through an incredible alien onslaught over sixteen zones, at the same time collecting essential supplies to rescue Captain Xod's Federation Ship.



Keep a close eye on the terrain, as you'll need to swap crafts very quickly indeed to pick off the different enemy forces, as well as to pick up much needed weaponry along the way.

Halfway through each section, approach the Sentinel with care. He's not easy to kill. Nor is the end of level Sentinel. There's only one way to destroy it, so attack with care.

The scope and presentation of Xenon are both excellent, making it a superb bargain on the budget label for shootie freaks.

BATMAN
You get two incredibly good games in one with this superb offering. Using arcade style adventure icon menus, with a fair amount of action as well, your first job as the Caped Crusader is to put the Penguin out of business again. Inside a mock umbrella factory, take on the robotic penguins in a dramatic bid to locate the master control computer, using all the clues you can find to help you.

In the second game, The Joker has run off with Robin and, if you don't find him in time, the whole caper's gonna get blown sky high. It's up to you.

Using excellent speech captions and utility screens, there are numerous puzzles to solve in this very interactive, comic-style yarn. The presentation is superb and the gameplay itself is totally addictive.

As a genuine mix of adventure and arcade action, Batman – The Caped Crusader, will be hard to beat.

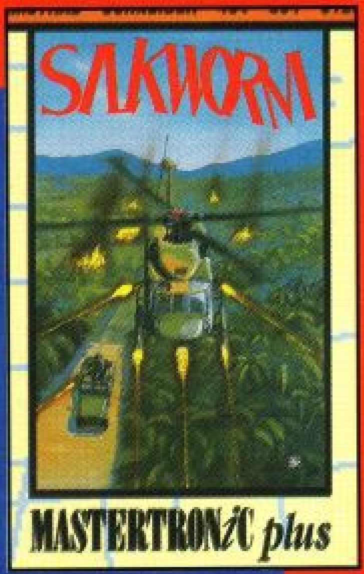


DOUBLE DRAGON
Not much to be said about this one, except that it's a brilliant beat-'em up for one or two players with a great need to let off steam.

Learn the moves, keep your eyes open for any type of weapon on the floor and then just get out onto the five different levels and beat the hell out of anyone who comes near you.



Good scrolling, nice atmospheric sound effects and more action than you can handle, make this blast worth every single penny of its budget price.



SILKWORM
So you wanna be a hero? Here's your chance. The future of the world is hanging on a thread after a threatened military coup by futuristic generals.

Only you and/or a friend can save the day by getting out into the air, or on the ground, depending on who's in the helicopter and who's in the jeep, and blasting hell out of the revolutionary forces. Watch out for bombs and traps and pay special attention to the Gooseneck helicopters, in this fast-moving action blast.

At the end of each level, you need to blow up successive generals to survive, but if you do, it's worth it to make your mark on history.



AFTER BURNER
From helicopters to high speed fighter jets, After Burner features some stunning aerial graphics as you take on the challenge to become number one ACE.

Master the controls, set your air speed and get running for the opposition, using your automatic cannons and guided missile systems.

You'll need to be pretty handy with the old joystick to shake off pursuers, so take care when the warning light starts flashing and make sure you tee yourself up properly for refuelling, or you'll run short on missiles.

After Burner is high speed action at its best, with plenty of variation to keep you hooked for a fair old while.

Xenon	Mastertronic	£2.99	78%
Batman	Hit Squad	£2.99	88%
Double Dragon	Mastertronic	£2.99	80%
Silkworm	Mastertronic	£3.99	76%
After Burner	Hit Squad	£2.99	90%

THE RIGHT TYPE

Using Brunword Elite, Vic Barnes demonstrates Steps 1,2 and 3 towards professional DTP

About fifteen years ago I used to receive letters from a large international company which was one of my clients. They were beautifully typed and printed on a machine which gave an output that looked like typesetting. The letters seemed to reflect everything about the client that fitted my imagination; successful, professional, organised, efficient, up-market and – above-all – classy.

This was in an era when golf-ball typewriters were considered hi-tech and daisy-wheel machines cost an 'arm and a leg' – and you could only dream about them anyway. I realised then that beautifully presented documents created a subliminal image in the recipient's mind.

I bought my first typewriter, a mechanical monstrosity, at Woolworths for £49. After that came a succession of machines which include a Brother EP44 and a cheap Olivetti daisy-wheel. My first consideration had always been quality of output, but on a limited budget it was inevitable that I would soon become disenchanted.

Eventually, I purchased a CPC complete with DMP 2000. The NLQ of the printer was awful, until I bought *Qualitas*. I loved the *Clarion* typeface because it looked like typesetting and I spent hours trying to create documents that gave the impression they had been professionally printed. I still think *Qualitas* is one of the best programs ever devised for the CPC, but the need for a second hobby while the DMP struggled to print out a 4,000 word article persuaded me to buy a 24 pin printer – the *Star LC24-10*. Speed of printing was wonderful, but I didn't think its best font, *Prestige*, was much of an improvement on *Clarion*. Then – as they say in all the best adverts – I discovered *Brunword Elite*.

The program is a 'one-off'. There is nothing like it available for any other computer and calling it a 'word processor' is an injustice to Peter Brunning. *Elite* will certainly take care of all your word crunching needs, but to buy it for that reason alone is a waste. Its real strength is in other unique features such as the 'page layout' facility and the splendid, high-quality proportional fonts included with the program. These fonts provide the user with a quality of output that is only *just* bettered by laser printers. And there is no loss of printing speed either!

There are four basic fonts supplied (with the 24 pin version) *Comput, Fineline, Finetype* and *Heavy*. The first, *Comput* has been provided purely for use as a display font and the latter, *Heavy* is similar to, but double the thickness, of *Fineline*. All normal, 24 pin printer variations can be used such as italic, condensed, double-height, double-width, bold and double-strike etc.

The two prestige fonts (no pun intended) are *Fineline* (sans serif) and *Finetype* (serif). Practically *all* typesetting typefaces are based on these two designs and they are similar to industry standards, *Helvetica* or *Gill*, and *Times* respectively. Supplied in three different sizes the fonts can be accessed by the program and used to replace the printer's standard fonts.

The reason *Elite's* fonts are of such high quality is because they are customised, or dedicated. Peter Brunning didn't just think of a basic design for his fonts and then *rattle* them off, he fine-tuned each individual letter before he was satisfied. After reading the *Epsom* book on font design he promptly ignored the perfectly good advice and standard practices which the book recommended. For example, ascenders use one more space than necessary and descenders use two more. Curves are also different, they often use an extra space, but it depends on the letter and the degree of curvature required. If you examined each character on a font editor they wouldn't look too spe-

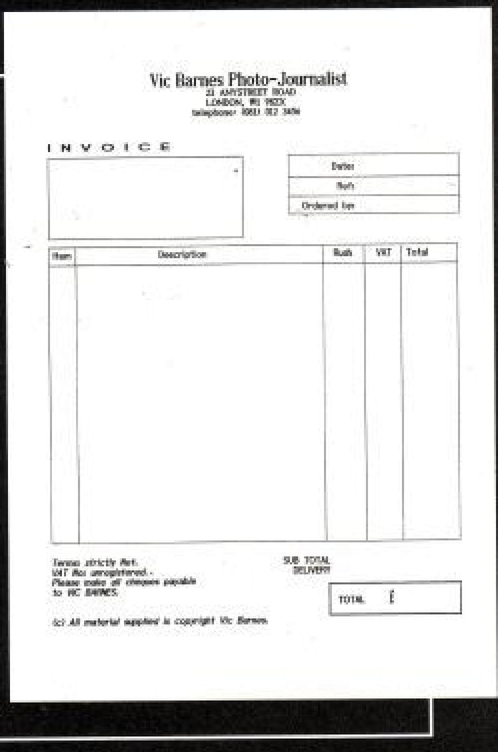
INVOICE

I've obviously changed by address and telephone number!

The letterhead section was printed first using the brand new – soon to be released – CHELMER font on the top line (from the *HEADLINE* extension). Address and telephone number are in FINETYPE from the *ELITE* program.

The host program then printed the other text, which is in HEAVY font, and also the boxes and vertical lines.

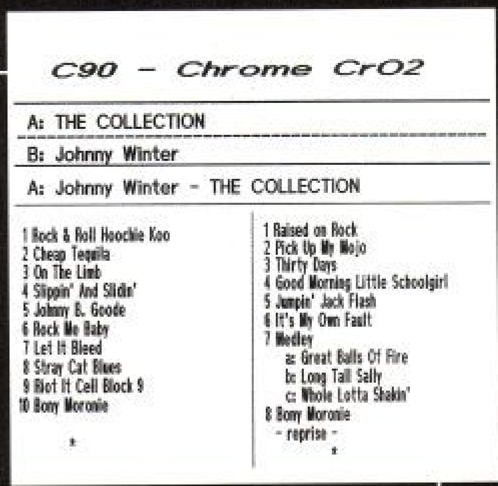
It took about an hour to design and a further hour to fine-tune. Six sheets of paper were used before I was satisfied.



CASSETTE LABEL

This took about 20 minutes to design and about an hour to fine-tune. Three print-outs were required to get it right.

The font HEAVY, in normal, condensed and lengthened.



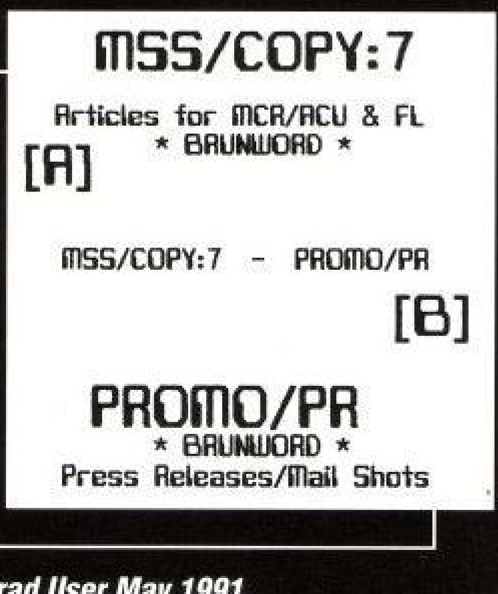
cial, but they do print beautifully!

Allied to its near typesetting quality, the program allows the drawing of boxes, and vertical or horizontal lines of variable thickness. It also has the ability to print any number of columns, in any position. A final (vital) feature is the ability to 'reset' the printer – at any stage during printing – to *any* specified point on the paper.

A word processor program with such a multitude of features can obviously be used for a multitude of tasks. It can even rival DTP packages, available on a PC, when its advantages are exploited, and when used within its limitations. Fanzines produced with *Elite* can look artistic and professional. Letterheads, if designed with care and printed professionally are almost indistinguishable from a commercially produced item. My own uses include the design of business invoices and statements etc. I produce two Newsletters for motoring journalist's organisations and these are similar to the *Brunword* advertisements, because they share an identical layout (cribbed from the program examples!) Finally, all manner of personal printing such as disc and cassette labels, colour slide captions and file titles make use of various fonts in appropriate sizes.

Using the program requires some effort and no-little time, but if you take pride in good presentation this becomes a 'labour of love'. However, there are a number of shortcuts and one of them is to make use of the supplied examples. Simply, load the page layout you'd like to duplicate; delete the Brunning text and save the instructions as a template. All you have to do then is type-in your own text and, hey presto, a perfect layout with no tears!

DISC LABEL
This is in COMPUT. It took less than an hour and was right first time.


MSS/COPY:7
Articles for MCR/ACU & FL
* BRUNWORD *
[A]
MSS/COPY:7 - PROMO/PR
[B]
PROMO/PR
* BRUNWORD *
Press Releases/Mail Shots

If you prefer to create your own page designs be prepared to waste a few sheets of tractor-feed paper. *Elite* is not a WYSIWYG program. Columns are created by reversing the printer at the bottom of each page, but the command for doing this is placed at the top. Printing boxes and vertical lines is best accomplished after printing all text. Getting these features positioned correctly requires some thought or planning. The secret is accurate measurement from a 'dead zero' position in the top left corner of the page.

The method I now use has saved me considerable time and paper, and is extremely simple. First, make sure that each sheet of paper is loaded in *precisely* the same position. Create a template by typing in all commands such as number and starting point of each column; justification and line spacing; position of boxes and vertical lines and, all margin off-sets. The final command should be 'Reset To Zero'. With this done, type in a full point and print the result. You now have 'dead zero' and all measurements can be taken from this point. Check and adjust any measurements you may have got wrong and save the result as a template.

Brunword Elite can be further expanded by the use of the new *Headline* extension. Designed primarily for 9 pin printers, it can also be used with 24 pin versions. Seven new fonts are supplied and a number of new commands help to extend the host program's versatility even further. *Headline* is loaded into *Elite* as an option and to make room for it *Brunspell* is cleared. The spell-checker can be reloaded at anytime by the same procedure.

Headline is switched 'on' and 'off' (within *Elite*) as and when required. This allows a tremendous variety of print styles and sizes to be used on any single document. Sizes up to 16 times normal can be specified as well as the option to use a multi-strike feature. The trade-off is a loss of printer speed when *Headline* is running. This is because it was designed to use standard 8 pin quad graphics. However, if the program is used only for headings and display-type, this need not be a problem as you will immediately switch *Elite* back on. If you don't mind waiting a while, *Headline* prints beautiful 'body copy'. It will also produce great letterheads and compliment slips, and truly excellent artwork for business cards.

If you wish to produce any of the items above, simply create your artwork (on clean, white paper) at twice


DESTINATION: The Winnock Hotel
The Square, DRYMEN. (0360) 60245
BREAK POINTS: Numerous!
PETROL: No Problems!
NOTES: Don't attempt if you arrive at
Gretna after 2pm. Ferry is 2 miles
before GOUROCK. (WESTERN FERRIES depart
every 30 mins.)
0.5m DRYMEN "0"
A858
12m <-----|
1m Balloch
A811
14m <-----|
A82
11m TARBET
A83
10m |----->
18m Strachur
A815
HUNTER'S QUAY----->
*** ferry ***
14m GOUROCK
25m Largs
A78
7m MONKTON
A77
19m AYR ----->
15m Dalmellington
14m Moniaive
A729
2m <-----NEW BRIDGE
A76
20m DUMFRIES----->
A75
GRETNA

READING THIS ROUTE CARD

Start at bottom and work up. Arrows indicate direction to turn. If no arrow is shown, continue straight on. Place names in lowercase indicate towns to pass through - no route change. Approximate mileage is on left.

TRIM ROUTE CARD AND STICK TO TANK.

ROUTE CARD
The top section is in SLIMLINE from the *HEADLINE* extension and the main text is, the soon to be released, CLACTON font. At the bottom, HEAVY condensed was used.

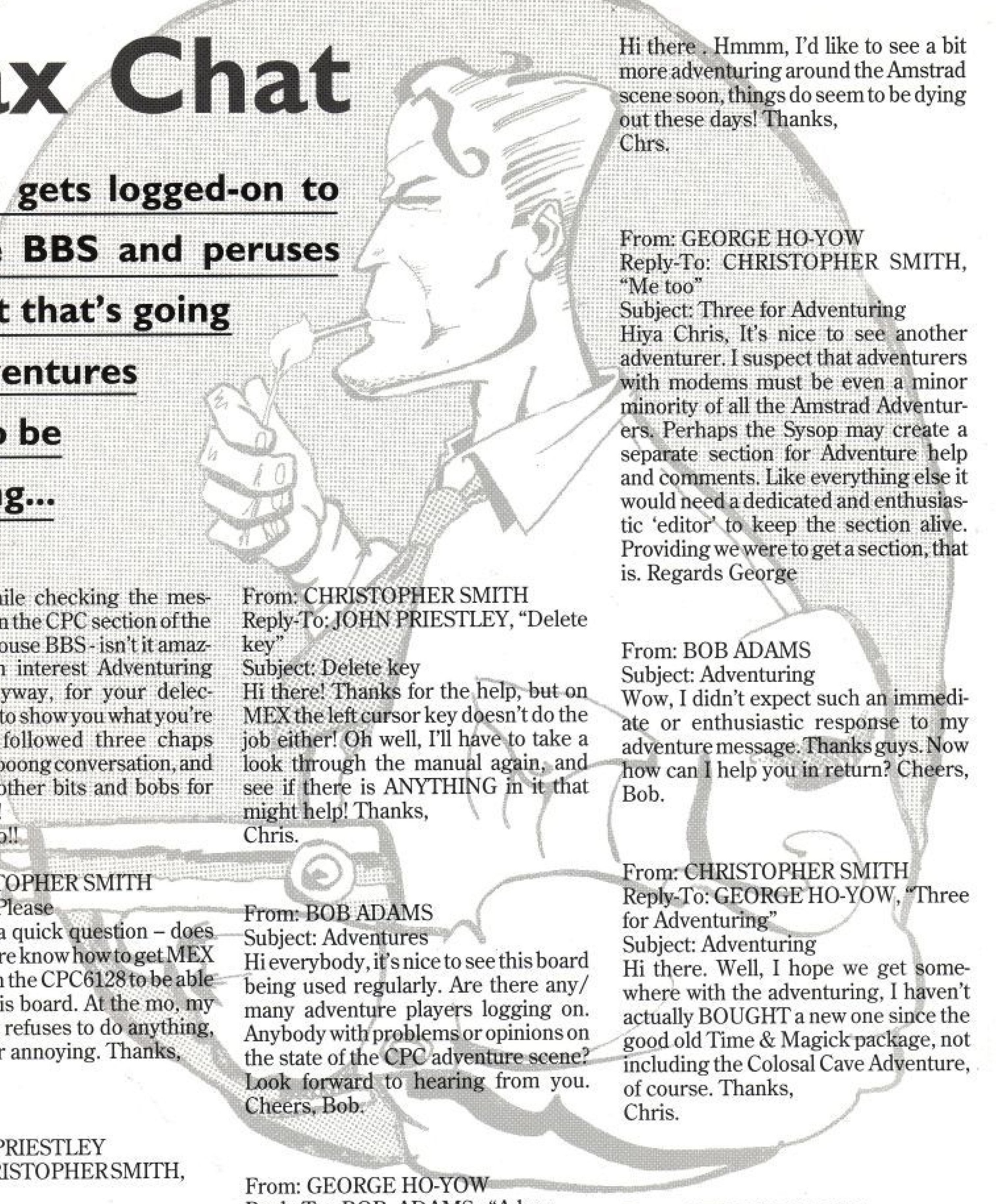
Apart from the map reading (!) this took about half-an-hour and required one print-out to get it right!

the height and twice the width of the finished product, though 'same size' repro is also excellent. For the ultimate result take to a *Kall-Kwick*, or *Prontoprint*, ask them to do a half-size PMT (Photo Mechanical Transfer) and then print in your favourite colour. You'll save about £20-£25 on their artwork charges!

I guess I must have spent hundreds of hours 'playing' with the *Brunword* suite. It has all been worthwhile though, because I am now producing better looking letters and documents than the majority of my clients!

Max Chat

Gordon gets logged-on to his fave BBS and peruses the chat that's going on. Adventures seem to be the thing...



I spent a while checking the messages out on the CPC section of the Maxwell House BBS - isn't it amazing how much interest Adventuring generates. Anyway, for your delectation, and just to show you what you're missing, I've followed three chaps through a loooooong conversation, and thrown a few other bits and bobs for good measure!

Here they go!!

From: CHRISTOPHER SMITH
Subject: Help Please
Hi there! Just a quick question – does anyone out there know how to get MEX (CPC-MEX) on the CPC6128 to be able to delete on this board. At the mo, my delete key just refuses to do anything, which is rather annoying. Thanks,
Chris.

From: JOHN PRIESTLEY
Reply-To: CHRISTOPHER SMITH, "Help Please"
Subject: Delete key
The delete key sends an ASCII character 127 and the board doesn't recognise this as a delete but uses cursor left which sends an ascii character 8. So press cursor left to delete. I dont know about MEX but some software can let you toggle the ascii character of the delete key to 127 or 8.

Hope this will help you.
John

From: JOHN PRIESTLEY
Reply-To: ALFRED DALTON, "my last phone bill was 7.33 (seven pound"
Subject: Phone bill
What did you do? Reverse charges?
John

From: CHRISTOPHER SMITH
Reply-To: JOHN PRIESTLEY, "Delete key"
Subject: Delete key
Hi there! Thanks for the help, but on MEX the left cursor key doesn't do the job either! Oh well, I'll have to take a look through the manual again, and see if there is ANYTHING in it that might help! Thanks,
Chris.

From: BOB ADAMS
Subject: Adventures
Hi everybody, it's nice to see this board being used regularly. Are there any/many adventure players logging on. Anybody with problems or opinions on the state of the CPC adventure scene? Look forward to hearing from you. Cheers, Bob.

From: GEORGE HO-YOW
Reply-To: BOB ADAMS, "Adventures"
Subject: Adventure Games
There seems to be a lack of support for adventure help and a forum for exchanging ideas and successes in ACU. I know Adventure players are a minority, but if sufficient replies to Bob's request is observed, perhaps ACU may restart an Adventurer's Column. I would dearly like to see Adventurimg taking off.
George

From: CHRISTOPHER SMITH
Reply-To: GEORGE HO-YOW, "Adventure Games"
Subject: Me too
Hi there . Hmmm, I'd like to see a bit more adventuring around the Amstrad scene soon, things do seem to be dying out these days! Thanks,
Chrs.

From: GEORGE HO-YOW
Reply-To: CHRISTOPHER SMITH, "Me too"
Subject: Three for Adventuring
Hiya Chris, It's nice to see another adventurer. I suspect that adventurers with modems must be even a minor minority of all the Amstrad Adventurers. Perhaps the Sysop may create a separate section for Adventure help and comments. Like everything else it would need a dedicated and enthusiastic 'editor' to keep the section alive. Providing we were to get a section, that is. Regards George

From: BOB ADAMS
Subject: Adventuring
Wow, I didn't expect such an immediate or enthusiastic response to my adventure message. Thanks guys. Now how can I help you in return? Cheers, Bob.

From: CHRISTOPHER SMITH
Reply-To: GEORGE HO-YOW, "Three for Adventuring"
Subject: Adventuring
Hi there. Well, I hope we get somewhere with the adventuring, I haven't actually BOUGHT a new one since the good old Time & Magick package, not including the Colosal Cave Adventure, of course. Thanks,
Chris.

From: GEORGE HO-YOW
Reply-To: CHRISTOPHER SMITH, "Adventuring"
Subject: Adventuring
It's good of you to reply Chris, I play FED2, which you may know is an online Multi User Game. However I've reached a point where the entertainment versus cost makes me think twice about continuing. I much preferred SHADES and BLOODSTONE. As far as specific games for the CPC is concerned, I enjoyed Time and Magic like you, also the PAWN, I have the Hobbit Trilogy? but it's on tape, well you know when u have a disc, one is loathe to use tapes. Have fun!
Regards George.

Incidentally I would reply quicker if

I didn't have to keep swapping modems. My old 1200/1200 doesn't latch on to MAX's carrier. So I have to revert back to v23. Bye Chris and maybe Bob might like to comment as well.

From: BOB ADAMS
Subject: Adventuring and stuff
To George Ho-Yow.
Hi George. Thanks for your messages, both public and private. I've been having trouble logging on here for the last few days, so sorry for the delay. Have fun with The Hobbit & Co but I'm afraid they're all full of bugs (some fatal!). I withdrew Hobbit and L.o.t.Rings from my helpline, as I never met anybody that had played the game the same as I had, so I could never help them. It became embarrassing, always writing back to some lost soul, "Sorry, but that never happened to me!" I never really cared much for either game. Too random and I HATE interactive characters. Probably explains why I don't like MUGS either. Well now that I've totally rubbished your adventures, what are we going to talk about now? Cheers, Bob.

From: GEORGE HO-YOW
Reply-To: BOB ADAMS, "Adventuring and stuff"
Subject: A little MUG
> Go East *> You are stood on a soapbox and feel a strong urge to speak! > shout "I wish adventure games were classified, so I wouldnt
buy the one suited for experienced players, and spend hours getting no where, then losing interest. Also I wish adventuregames were not so similar, and seem to be an alternative to crytic crosswords. *> A heckler rails " Crosswords, I'll give you crosswords, *!!@+*, he he!" > shout "And perhaps cater for a wider range of tastes!" *> There's loud clapping... of thunder. And as the heavens open everyone rushes for cover > quit

From: BOB ADAMS
Subject: Adventure Corner
Nice one George! To continue your theme:- *Examine Soap-box. It is a cardboard box, large enough to hold an Infocom game and the all free bits and comics, etc. You can also see a label. *Read label. The label says "Expert level." *Say #$%&! You can't.

Okay, I know I've chosen the only Software house that ever did grade their adventures but at least it has been done. My own advice and also the exact way I got started myself, is to hunt for all the CPC adventures that were written around 1985/6. These are often only Verb/Noun type inputs but are still pretty good adventures and lead you into problem solving gently. You can concentrate on the adventure and not the "wonderful" parser/utility/system or graphics.

From: GEORGE HO-YOW
Reply-To: BOB ADAMS, "Adventure Corner"
Subject: Adventure Corner
Hello Bob, thanks for your helpful tips.I believe there are also adventuring by post, and I dare say there could well be adventuring by mailbox. However I don't think this is the place to continue our little game. Incidentally, are you the Bob A. who wrote the review on A.... in Wa... Dont want to give a free plug to anyone. He He! I was reading Artificial Intelligence and Computer Games by R Bartle. It makes interesting reading. If only I could implement some of his ideas! I feel it would be possible to open a different approach to the present games on the market. What are your views on RPG, such as the BARD. I must confess I haven't even bought the game, much less playing it. Anyway bye for now George. Ps I hope I haven't monopolised this BB, Perhaps this should have been a private message. Anyone out there think so?

From: JIM CARTER
Forwarded From: SYSOP
Subject: Mex and the CPC6128
Having just got Mex configured for a Datachat 1223 modem and Spectre Comms Pack I appear to be having problems losing the first character in each line on the screen, which can make life difficult when it comes to menu's. Being completely lost with CP/M, can anybody tell me what I am doing wrong. Jim.

From: GEORGE HO-YOW
Reply-To: GEORGE HO-YOW, "Adventure Corner"
Subject: ADVENTURE AND GAMES CORNER
10 ' How to kill two birds with one stone. 20 ' ======= Write a progette to simulate the 30 ' |8|7|6| hand-held game for moving tiles 40 ' |5|4|3| to a new arrangement. In this case 50 ' |2|1| | ascending order. The prog should ask 60 ' ======= for a no. to move, then validate the no. 70 ' and move the "tile". Only 3 or 1 can move initially. 80 ' You should be able to write the game in 10 lines or less. 90 ' Feel free to submit it for 10-liner publishing in ACU. 100 ' And may the best prog win!

From: GEORGE HO-YOW
Subject: Downloading Files using XMODEM
I've just downloaded some files from the CPC area, and noticed that after completion of each file xfer the cursor on my terminal just blinks at me. Sending <control f> appears to tell MAX that the file xfer has been completed. I think this is a problem with the PACE Xmodem s/w called Honeyterm. George

From: TONY WALKER
Reply-To: JIM CARTER, "Mex and the CPC6128"
Subject: Mex and the CPC6128
Hi Jim, Regarding your problem with mex loseing characters. Try putting ESC 0 in your Profile.Sub file just before it calls up Mex. I used to have the same problem but since I did this it now works okay>.

Regards Tony.

From: GEORGE HO-YOW
Subject: ansiterm
Hello Bob, I'm using Ansiterm which was downloaded from the CPC area. IT offers quite a difference in approach to what I have been used to. But I wouldn't like to say whether it's better or not than the standard Amstrad S/W. Regards George. Ps If I had a colour monitor, perhaps it would make quite a difference Also I noticed some graphics as well.

From: BOB ADAMS
Subject: Adventure Corner
Hi Adventurers, There are a lot of "new" adventures available from Public Domain libraries, all of a sudden. They vary in quality from "naff" to "not bad at all". I find this renewed interest in adventures very encouraging. A couple of Libraries to try are SCULL PD & ADVENTURE PD. I have the addresses if you would like them. Cheers, Bob.

Well - that lot took only a very short time to go up and down, and I daresay the three adventurers will be great friends should they ever meet at a show somewhere. That's the great thing about comms! Seeya next month.

Gordon Bates.

Greetings fr

More hints to make the big time,

Welcome back to the fiddle factory folks, you just caught me in mid-fiddle while eating a quick snack chilli out of what was a patterned bowl. I think I overdid the homegrown chilli powder.

No matter, you're not interrupting anything, in fact I was just about to show you a few multiface pokettes, like these ones here that Darren Casey sent in for the Midnight Resistance disc:

Address Poke
What it does &46D4 201
Never die &47
DC 00 Never lose a life
&470F/10/11
00
Keep keys when hit
&48ED 1-3 T
ype of gun
&48DC 1-3
Type of backpack &19BA
1-255 Number of keys &0E28
1-255 Number of lives &4F1B
1-255 Amount of ammo &4F1C
1-255 More ammo &4F2C
1-255 Amount of ammo for backpack
&0E33-&0E39
Roll-your-own score.
Use 48 for a "0", 57 for a "9", and all shades between.

Busy bloke that Darren Casey feller, keen fan of the Turtles too. Once you've shelled out for your fabuloso (tm) Turtles disc, do a LOAD "TUNE2000", &2000 to get the tune program into memory. Now you want to save it all out to disc again (oh yes you do), and you do that like this: SAVE "TUNE2000",b,&2000,&fa0

OK, all you need to do now to make the turtle music play in the background is add a wee programette to your repertoire, and make sure that anything you tack onto it doesn't overwrite the music:

```
1 'Music-Turtle music loader 2
'Hacked by Darren Casey 3
' 10 MEMORY &1FFF
20 EVERY 1,1 GOSUB 120
30 LOAD "TUNE2000",&2000
40 POKE &2000,1
50 POKE &2005,15 60 REM
70 IF INKEY$="" THEN GOTO 60
80 EVERY 1,1 GOSUB 130
90 PRINT CHR$(7)
100 END 110 RETURN
120 CALL &2006
130 RETURN
```

Let's hear it; Teenage mutant ninja turtles. Truly awesome, dudes. There's more too, just to keep you occupied when eating (or "scarfing," as our green, reptilian friends would say) your tuna, banana and chocolate fudge pizzas. First some useful addresses. Hang on, I can't put that sort of thing in the Hacker's Haunt, you'll have to have these handy routines instead and roll your own pokes:

&0904
Amount of wrong answers to password
&868B
Amount of time left on level 3
&EF0D
A call to here switches on the cheat mode
&EF1A
A call to here switches off cheat mode
&0AAD
Calling this bit gives the Shredder message &626E
This is the routine that decreases the timer in level 3

And while you're doing all that, I'm going to scarf some more chilli before it dissolves the rest of the bowl. I see, unable to roll your own poke, even when equipped with a multiface are we ? Oh hum, here are the useful bits to poke at with your multiface:



Address Poke What she does
&0A88 0D These turn on cheat mode if you stuff the password 3times
&0A89 EF or &0A88AD As above, but the game just starts.
&0A89 0A
&627500 Timer in level 3 never runs out.

I think there's going to be more from Darren next month, but meanwhiles Darren, watch the letterbox in case the tortoise – sorry – postman drops something through it. Hopefully not a poll tax demand.

Guess what's next? You peeked!

om Hackland

, from Mr Cheat himself, The Vax.



Should've poked, but never mind. Yes, it's a Girvingram. John "I'm a saucepan" Girvin has been at it again. Not only that but he's sent in the odd pokeykins or two as well, on tape and paper. His printer looks suspiciously like my German one that died recently under equally suspicious circumstances mit kaput Spiringenvork, bowen Fusen und Spitzensparken.

In his own words (well, more or less), here are John's pokes:

The first victim this time around is Dominator, which us lot sent him that for being a 'generally awesome hacker' (his quote), closely followed by Gemini "impossible to play on a greenscreen" Wing by System 3 and Virgin/Mastertronic respectively.

Dominator "eats hack" first: you get the option of infinite lives, no low-flying bad guys, no bad guys on the walls, and a generous helping of invulnerability.

It's not all yer proverbial bed of roses though. If you select invulnerability you can't pick up any bonus icons that appear, and if you get rid of the flying bad guys, no bonus icons will appear at all! Can't have everything you know, but you can have the pokette:

```
1 'DOMINATOR hacks
2 'By John Girvin
3 ' 10 MODE 0:OPENOUT"d"
20 MEMORY &6A9D:CLOSEOUT
30 LOAD"!dom",&6A9E
40 addr=&BE80:RESTORE
50 READ byte$
60 IF byte$="INDIGESTION" THEN
CALL &BE80
70 POKE addr,VAL("&"+byte$)
80 addr=addr+1:GOTO 50
90 '*** LEAVE 100-180 IN ***
100 DATA 21,9e,6a,11,9e,9a,01,44
110 DATA 0f,ed,b0,3e,c3,21,99,be
120 DATA 32,16,bd,22,17,bd,c3,9e
130 DATA 9a,cd,37,bd,21,00,00,22
140 DATA 4b,a6,21,b1,be,22,4e,a6
150 DATA c3,08,a6,a4,48,4c,46,0a
160 DATA 89,dd,21,b8,a8,11,ab,00
170 DATA cd,47,a8,21,c4,be,22,61
180 DATA a9,c3,e2,a8 190 'Inf. lives
200 DATA af,32,36,07 210
'Invulnerability
220 DATA 3e,c3,32,18,24 230
'No flying bad guys
240 DATA 3e,c9,32,d4,18 250 'No bad
guys on walls
260 DATA 3e,c9,32,b4,1c
270 '*** LEAVE
280 IN ***
280 DATA c3,00,05,INDIGESTION
```

Gemini Wing is made slightly more survivable on any kind of monitor with the addition of a few special weapons of his own. The first addition is infinite lives, followed closely by invulnerability to everything (except the barriers on levels 3 and above), removal of small aliens (the "bringers" and guardians are still there), and a finger paralyser for alien trigger fingers (they stop firing).

As usual you type in the program and type "RUN" with the fully rewound game tape in the tape unit (it'd look silly in a disc drive). The programs are also on this tape after this program:

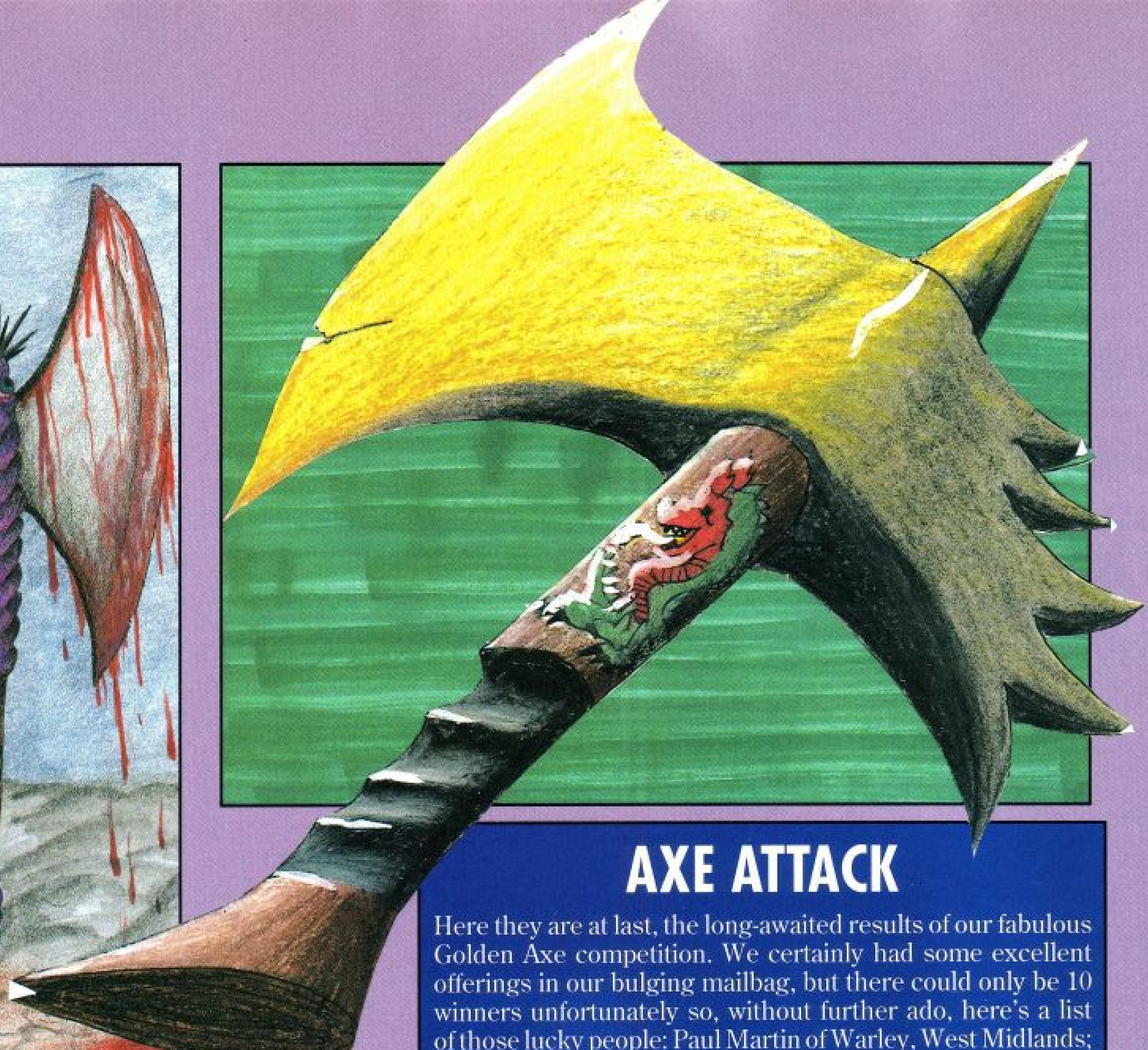
```
1 'GEMINI WING hacks 2
'By John Girvin 3
' 10 MODE 0:OPENOUT"d"
20 MEMORY &6A97:CLOSEOUT
 30 LOAD"!gemini",&6A98
40 addr=&BE80:RESTORE
50 READ byte$
60 IF byte$="IMASPUD" THEN CALL
& BE80
70 POKE addr,VAL("&"+byte$)
80 addr=addr+1:GOTO 50
90 '*** LEAVE
100-180 IN ***
100 DATA 21,98,6a,11,98,9a,01,4a
110 DATA 0e,ed,b0,3e,c3,21,9f,be
 120 DATA 32,16,bd,22,17,bd,c3,98
130 DATA 9a,a4,48,4c,46,0a,89,cd
140 DATA 37,bd,21,00,00,22,4b,a6
150 DATA 21,b1,be,22,4e,a6,c3,08
160 DATA a6,dd,21,b8,a8,11,ab,00
170 DATA cd,47,a8,21,c4,be,22,61
180 DATA a9,c3,e2,a8 190 'Inf. lives
200 DATA af,32,3b,44
210 'Invulnerability
220 DATA 3e,18,32,20,5c
230 'No small aliens
240 DATA 3e,c9,32,68,61
250 'Stop aliens firing
260 DATA 3e,c9,32,0c,6c
270 '*** LEAVE 280 IN ***
280 DATA c3,15,58,IMASPUD
```

He's also managed to uncover the passwords for all levels of Gemini Wing (clever sausage). They are, and pay attention now: "THESTART", "EYEPLANT", "WHATWALL", "GOODNITE", "SKULLDUG", "BIGMOUTH" and "CREEPISH" in that order. Congratulations on the 9 GCSEs too, and I'll give you something to look forward to so you can feel even more incredibly smug.

Oh well, that's it for another month, and I've gotta leave as the chilli is starting to take effect. I couldn't think of a quick way to round the column off, so I took a sneaky look at the magazine. It finished like this: Edam is made backwards.

Luv 'n' stuff, Vax, Suz, Brats & other well-fed creatures

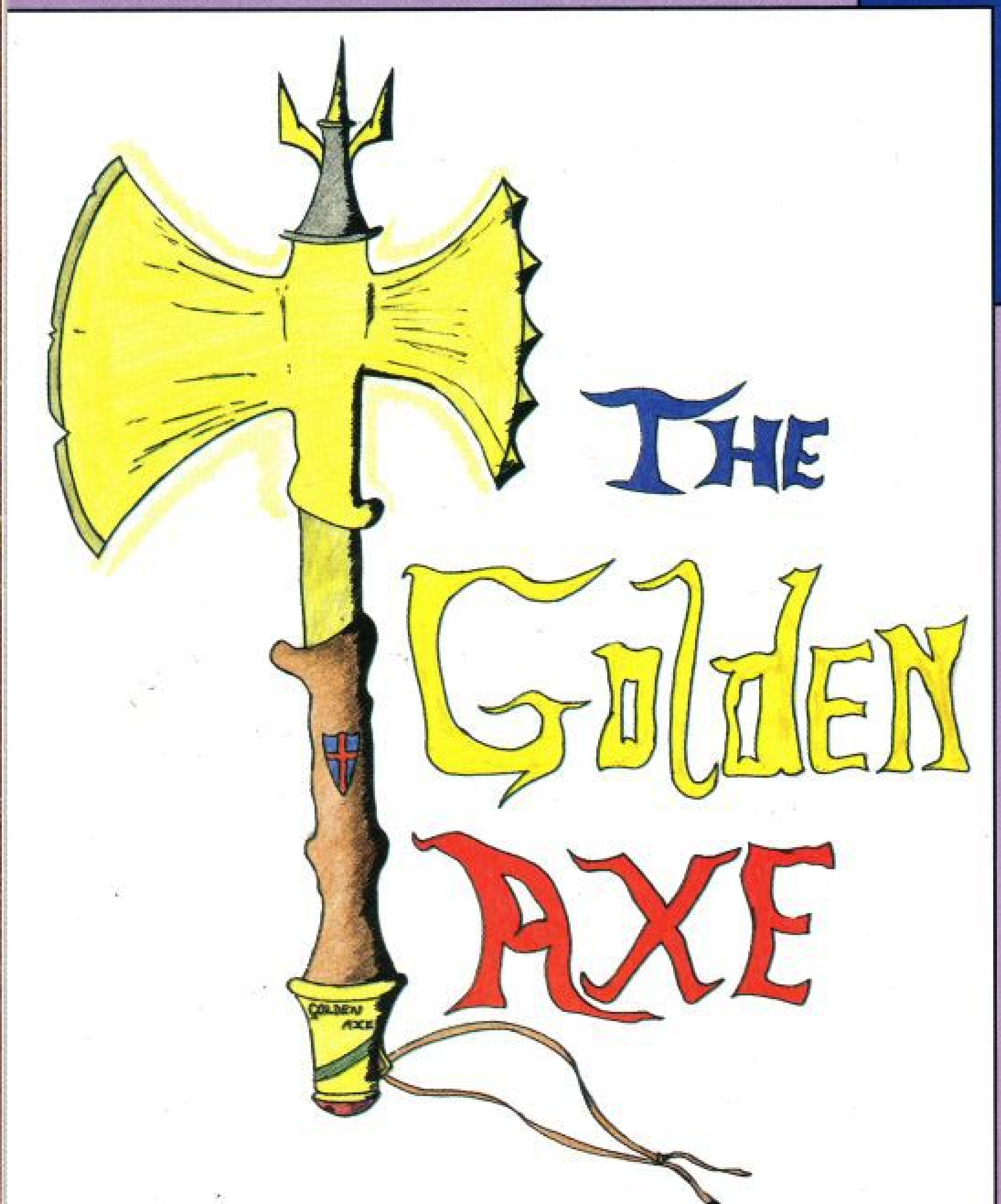




AXE ATTACK

Here they are at last, the long-awaited results of our fabulous Golden Axe competition. We certainly had some excellent offerings in our bulging mailbag, but there could only be 10 winners unfortunately so, without further ado, here's a list of those lucky people: Paul Martin of Warley, West Midlands; Michael Moore of Adlington, Lancs; Johnathan Ryans of Doncaster; Graham Tarran of Manchester and Daniel Pilling of Chester, who will all receive a superb boxed copy of the Games Workshop's Dungeon Quest.

Five lucky runners-up will also find copies of the mammoth Golden Axe winging their way to them in the post very shortly. In the meantime, sit back and enjoy the excellent artwork of our winners and then get thinking about this month's fabulous competition on page 12.





WIN A

PC 1640

COMPETITION

INTRASET LTD

TEL 025 72 76800 (MAIN OFFICE & 24 HR ORDER LINE)
HELPDESK 0490 3284 (WEEKDAYS 3-4 P.M.)
FAX YOUR ORDER ON 025 72 74753

All prices include P & P and V.A.T. Overseas Orders please add £5.00.

CASHMASTER

HOME AND BUSINESS ACCOUNTS

- Master your own finances. CASHMASTER is the easiest, to use most versatile accounts programme yet written.
- CASHMASTER is suitable for both small business accounts or home finance use.

We wrote CASHMASTER for our own use out of sheer frustration with the other so called easy to use packages. CASHMASTER allows you to input entries in one easy operation and yet allows you to extract the absolute maximum of information in an impressive array of statements and reports: Just look at it's range of features:

- Easy natural data entry - Just like a handwritten ledger.
- Full V.A.T. Analysis or omit V.A.T. altogether if you wish.
- Any amount of ledgers at one time.
- No set time periods, span any time period - no one year limit.
- Reports can be produced over any time span (1 day to 100 years).
- Up to 100 user definable Class and 20 Accounts Codes.
- Detailed statements by selected Classes or Accounts.
- Profit & Loss Statement.
- Tagging of entries for report selectivity.
- Entries can be Inclusive or Exclusive or Zero V.A.T.
- Automatic repeat of entries (Standing Orders Etc.) Yearly, Half Yearly, Quarterly, Monthly, Fortnightly or Weekly.
- Insert entries anywhere in ledger, CASHMASTER automatically sorts into date order.
- Search and Find option on any entry anywhere within ledger.
- Reports can be output to Screen, Printer or Disc File.
- Reference field for every entry (Invoice no. Cheque no. Etc.)
- Split and Merge ledgers at any time.
- All functions available from main programme screen. Class and Accounts codes visible at all times.
- FREE Pop up running total calculator called up with one key press.

CASHMASTER IS THE MOST USER FRIENDLY, POWERFUL AND VERSATILE ACCOUNTS PACKAGE YET - YOU WON'T BE DISAPPOINTED.

And now available with............

CASHMASTER INVOICING & STOCK CONTROL

- Full Customer Data File - Easy to find account records.
- Full stock Data File, Price Lists, Re-Order Lists.
- Full invoicing with User Defined Messages.
- Full invoice editing, Invoice to & Deliver to fields.
- Pre-Paid, Account or Credit Note, Full V.A.T facility.
- Settlement, No Return & Line Discounts.

Stand alone Invoicing/Stock Control or integrates Fully with CASHMASTER for a FULLY FEATURED ACCOUNTS / INVOICING PACKAGE costing less than a quarter the price of it's rivals.

CASHMASTER £39.95.
CASHMASTER INVOICING £39.95.
BOTH PROGRAMMES TOGETHER £69.95.

££££ PROFIT FROM YOUR MICRO ££££

RECESSION ? WHAT RECESSION ?

- Make your Micro Earn!
- Whatever make of micro you have you can use it to make a good income even if you only have a couple of hours spare each week!
- This is not PIE IN THE SKY, MAKE A MILLION BEFORE BREAKFAST nonsense but a true report of exactly the sort of steps that we ourselves took at INTRASET.
- We have put together a package of easy, sensible business ideas which can easily be used by anyone with any Micro.
- NO COMPUTER EXPERTISE REQUIRED.
- Earn £££'s from home doing what you enjoy doing - using your computer!
- You probably already have everything you need to start earning.
- Hundreds of potential customers in your area who will GLADLY pay for your services. We tell you how to find them!
- Part time or start your own full time business. Ideal for housewives/husbands, unemployed etc. Very little Capital outlay on projects.
- Full step by step sixty page book PROFIT FROM YOUR MICRO comes complete for just............

£14.95 inclusive.

SPECIAL DISK DEAL

DISK	£ 10	£ 50	£ 100
3" CF2(AMSOFT)	19.00	92.50	180.00
3 1/2 DSDD	6.90	32.00	60.00
5 1/2 DSDD	3.90	19.00	37.00

GENUINE HIGH QUALITY DISKS

POOLSMASTER

The Football Pools Predictor

'A LICENCE TO PRINT MONEY'- Mr F C Hammond of Essex

'WE HAVE WON MANY THOUSANDS'- Mr P E Roberts of Dorset

- Just a couple of the many unsolicited testimonials about this truly amazing Football Pools Predictor Programme which has consistently astounded us with it's accuracy. Check out it's features:-
- Predicts Homes, Aways and Draws.
- No fiddly typing in of team names: Unique indexing system for quick entry of fixtures and results - just type in the results each week from your usual newspaper and the programme updates itself.
- Uses scientific formula which is the result of many years study of the football pools to give a strike rate which is consistently higher than the laws of average.
- Also has a SEQUENCE PREDICTOR option in addition to form Predictions which analyses coupon number sequences. This option has astounded us in the past and continues to do so.
- Can be used for league and cup matches. Updates season after season. No need to buy a new copy every season.
- Send for POOLSMASTER today and increase your chances of that JACKPOT. Comes complete with manual and informative Pools Guide.

Discs and Tapes £19.95

** SPECIAL OFFER **

SPECIAL COMPENDIUM DISKS/TAPES

POOLSMASTER/PERM-MASTER/COURSEMASTER & SPOT-THE BALL. ANY 2 PROGRAMMES £37.95 ANY THREE PROGRAMMES £49.95, ALL FOUR PROGS £59.95 BUY ANY THREE DISKS (OR TWO INCL COMPENDIUM) AND RECEIVE PROFIT FROM YOUR MICRO FREE.

THE GRAPHOLOGIST

HANDWRITING ANALYSIS PROGRAMME

" UNCANNILY ACCURATE" - 8000 PLUS MAGAZINE

- Analyse YOUR handwriting, or your partners, friends etc. What are they REALLY like! Your handwriting always reveals your true nature, state of health etc.
- This programme is a must for anyone interested in handwriting analysis, both expert and beginner alike.
- The programme will provide an analysis of a subjects handwriting ranging from a simple signature analysis to a full 15 page complete character report. Ideal for prospective employers,experienced graphologists or anyone interested in this fascinating art.
- All you need is a sample of the subjects handwriting and follow the simple on screen instructions. Upon completion you are left with an in depth report detailing all aspects of your subjects' character from career ambition, state of health through to sexual preferences and megalomania!
- You may even edit this report using your word processor for presentation to your subject/client.

THE GRAPHOLOGIST is a must for serious business use or simply have loads of fun entertaining your friends whilst learning the finer aspects of this fascinating subject.

- COMPLETE WITH MANUAL OF GRAPHOLOGY

Price £49.95 Inc. VAT and P&P.

All programmes available for IBM/PC & Compatibles, all Amstrad PC's, Amstrad PCW's, Atari, Amiga, CPC 6128 (Unless Otherwise Stated). Perm-Master also Available for Commodore 128 DISK Coursemaster and Poolsmaster also available for All Amstrad CPC's, All Spectrums and C 64 & 128.

COMPETITION RULES

EVERY PURCHASE MADE QUALIFIES YOU TO ENTER OUR COMPETITION DRAW. THE TOTAL VALUE OF YOUR PURCHASES WILL DETERMINE THE PRIZE WON . THERE WILL BE ONE 1st PRIZE ONLY PER DRAW. SPEND UP TO £20.00 - 1st PRIZE = A STAR LC PRINTER. SPEND UP TO £40.00 - 1st PRIZE = AMSTRAD PC 1512 SDMM. SPEND OVER £40.00 - 1st PRIZE = AMSTRAD PC 1640 SD COLOUR. 5 RUNNERS UP WILL EACH WIN FULL SET OF INTRASET SOFTWARE AS ABOVE. INTRASET'S DECISION FINAL ON ALL MATTERS. SEND S.A.E. FOR LIST OF WINNERS. DRAW DATES 28/2/91and 28/9/91.

COURSEMASTER

THE COMPUTER HORSERACING TIPSTER PROGRAMME

- BEAT THE BOOKIE FOR A CHANGE!!!
- RATES ANY RACE using racecard in any daily paper or racing paper - BOTH FLAT AND JUMPS.
- Gives clear forecast of best selection PLUS second and third forTricasts etc.and even recommends type of bet.
- Works out your WINNINGS on most popular types of bet ie. SINGLES, DOUBLES, PATENT, YANKEE, CANADIAN ETC.
- MAINTAINS A BANK ACCOUNT - Bet like a PROFESSIONAL!
- PLUS the amazing COURSEMASTER SYSTEM BET. This superb easy to use betting system regularly provides our customers with MAJOR WINS for small stakes - try it and amaze yourself. Will even PRINT OUT YOUR BETTING SLIP for you if you have a printer!
- COMPLETE WITH 20 PAGE BETTING GUIDE AND MANUAL.

DISCS AND TAPES £19.95

PERM-MASTER

If you enjoy doing the pools and regularly use perms as we at INTRASET LTD. recommend then checking your coupon can be a nightmare. Have you won or haven't you? Perm-Master ends the agony by checking your perm for you. Simply tell it which of your coupon numbers are draws and it will do the rest, telling you how many winning lines you have.

Perm-Master comes complete with several of the top perms already built in, but if your favourite perm is not there then simply create your own using the unique perm editor.

- Fast and simple to use
- Unique PERM EDITOR
- Create your own perm using the inbuilt perm calculator, test your own theories etc.
- For Most block and single line perms.

Price £19.95

SPOT-THE-BALL

For all SPOT-THE-BALL fans this programme is a must, no more tiresome counting of 'x's or messy rubber stamps. Use your computer to do your SPOT-THE-BALL coupon.

Just tell your computer where you think the ball is using the screen template supplied.

Will print out up to 540 micro-fine crosses in your chosen shape, or simply tell it to choose at random.

Learns as it goes - tell it where the ball is every week and build up a database of results to use in SPOT-THE-BALL's sequence predictor option.

Works with any Epson Compatible Dot Matrix printer or build your own printer driver using the on screen option.

- LET SPOT-THE-BALL fill in YOUR COUPON this week.

SPOT-THE-BALL £17.95

P.C. PATIENCE

- Four addictive P.C. card games to test your skill and luck.
- P.C PAIRS, THE INTRASET CASINO, P.C. GOLF & CHESS PATIENCE
- Ideal relaxation whilst the boss is not looking, but don't blame us if you get totally addicted, (But we know you will!)

P.C. PATIENCE £14.95 (IBM/Pc compats only with 256k + CGA Monitor Required)

Spend over £100 and claim this item free!!!!!

INTEREST FREE CREDIT TERMS

SPEND OVER £80 AND SPREAD THE COST AT NO EXTRA CHARGE! (CHEQUE PURCHASES OVER £80 ONLY). SIMPLY DIVIDE YOUR ORDER BY 4 AND SEND US FOUR CHEQUES EACH WITH YOUR NAME AND ADDRESS AND CHEQUE GUARANTEE CARD NUMBER ON THE BACK. DATE THE FIRST CHEQUE WITH TODAY'S DATE AND POST-DATE EACH OF THE OTHER CHEQUES BY ONE MONTH i.e. 1/5/91, 1/6/91 Etc. WE WILL THEN HOLD EACH CHEQUE UNTIL IT IS DUE.

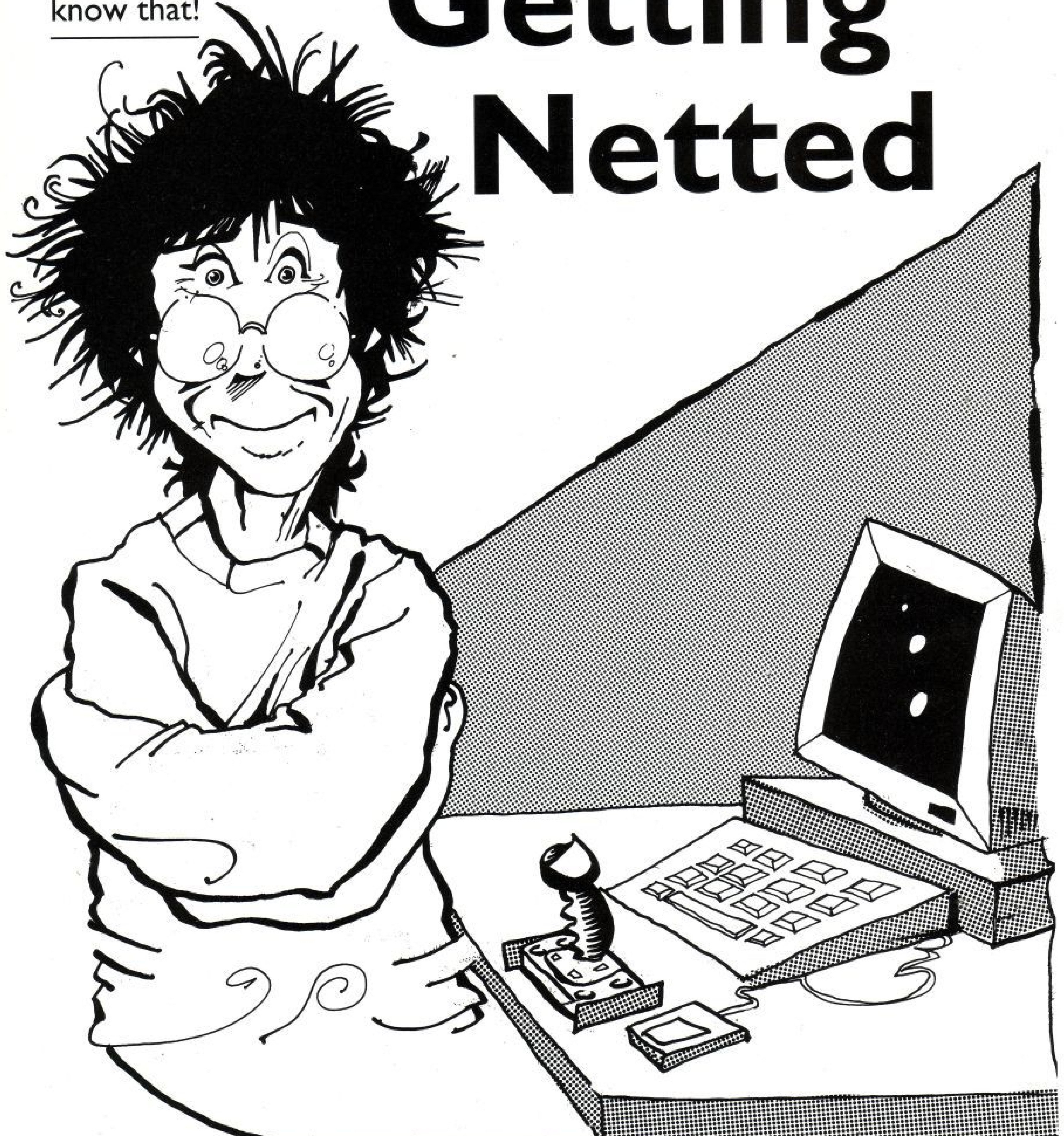
HOW TO ORDER:- CHEQUES P/O's TO INTRASET LTD (DEPT ACU). FREEPOST, 10 WOODSIDE AVENUE, CLAYTON-LE-WOODS, CHORLEY, LANCS. PR6 7BR OR PHONE / FAX AS ABOVE FOR LIGHTNING FAST SERVICE. WE ACCEPT ALL MAJOR CREDIT/CHARGE CARDS. SEND S.A.E. FOR FREE SOFTWARE CATALOGUE

The CPC is a serious machine, so says the Doc, which is capable of being networked. Not a lot of people know that!

Getting Netted

Hands up everybody that knows anything about networks. Hmm. Not a lot of you. OK, in this article I'm going to be explaining what a network is, how it works, and how it can be useful for the CPC owner/user.

Now, it may seem to you that the good ol' Arnold isn't anything but a games machine, and, I suppose, for a great many people that's perfectly true. But it can be put to sterling service in the small business environment – you've just got to look at the number of so- called 'serious' packages available for it, and it's a fact that some of the best wordprocessors around run on our fa-



vourite machines.

However, not many people successfully exploit the connectivity that the Amstrad machines are capable of: I know, there are plenty that have modems hanging from the backs of their machines, but the CPC is also a neat machine for using in a network.

So what's a Network?

The simplest way of describing a network is to say that it's a means of sharing resources between machines. Networks come on a number of levels, the first of which I'll call the ambulant format.

This is the simplest way of file sharing there is. You pop a disc out of your drive, amble to your mate's machine, and slip it into his drive. Bingo – instant file sharing. Printer sharing works the same way – you whip the printer off your desk, and carry it over to another machine to be used. No problem.

The trouble with this is, the machine that your mate/colleague has may not be able to read your disc – it could be a tape based 464, it might be a PC, it could be an Amiga (who he??). So, the ambulant network works best when compatible machines are being used.

The next step us is the two-machine RS232C network. In this format, two machines at any one time can be connected together to exchange files – much like using a modem. In fact, it's the commonest method of file exchange between machines that are not at the same site. Again, though, it has its limitations - the files aren't being shared at all, merely exchanged, and two machines are tied up when neither needs to be.

Let me explain this sharing concept a little more fully – you're probably not too aware of how it works. We'll take a database file as an example.

Let's say that Fred and Joe both need access to the same contacts list, held in a database file. Under normal, non-networked, conditions, each has his own copy, which he updates as he goes. No problem, you might think, but there is a hitch.

Fred might insert a contact that he's got that Joe needs to use. At the same time, Joe inserts another contact that Fred will need to use. Each has it on his personal copy of the database file. Let's say company policy is to have only one file, such that each employee has access to all contacts (an eminently sensible arrangement). Who has it? Is it Joe, or Fred, since each now has a different file.

What needs to be done is to merge the two files, so that all new entries, from both Fred and Joe, are in it. That, of course takes time, and since both Fred and Joe are double glazing salesmen, their time costs money, so it's a waste of time.

Now, if Fred and Joe were part of a network – if their CPCs were networked together with another machine or more, they could keep the database file on ONE machine, and each could look at it whenever he needed to. He could also add to it as a new entry needed to be made, and the other would be able to see it immediately.

In this case, Fred and Joe would SHARE the file, rather than having to keep their own separate copies and swap notes each night. As either Fred or Joe updated it – either inserted a new record or deleted one – the other would be kept appraised, as they both use the same file.

It's a very simple concept, but it only works when some kind of network is running. Now, the ambulant network I spoke of earlier could work in this way, and work quite satisfactorily in a network of similar machines. All it would entail would be ONE disc with the file on it being passed around from pillar to post here there and everywhere, with an obvious consequence.

It's going to get lost, or some bright spark is going to decide that rather than go hunting for it, he'll make a copy and use that. Eventually, the shared file isn't kept updated, and people revert to having their own copies.

If, however the machines are networked, all machines (stations, we call them) have access to the central file, and everything's hunky dory.

Now, at this point, I can just imagine that you're sitting there saying 'What on earth has this do do with the CPC??'. Quite a lot, actually. Remember, at the top of this article I said that the CPC is capable of being networked, and it is, courtesy of those nice people at Nine Tiles, who actually produce a CPC network called Superlink, which I'll be reviewing in two parts next month and the month after. (I bet 9T get a phone call from another mag now!)

So, now that you know we're not just talking theory, how do these here network thingies work?

Topology.

It's actually quite simple. On the CPC, every data signal inside the machine is duplicated at the expansion port. If you so desired, you could knock up a superswish keyboard and interface it to your machine via the port, and not bother using the built-in one. So, the port is capable of input as well as output - but you knew that already, didn't you? Didn't you???!!! Well it is!

If it's capable of input as well as output, there's no reason on earth why it couldn't accept signals from another machine, or even a number of other machines, and share information with them. And here's the beauty, those other machines don't HAVE to be CPCs. They can be PCs, STs, Amigas, whatever, as long as they have the same capabilities.

If you only have two machines talking to each other like this, there are few problems – one talks, the other listens, and if the 'conversation' is slow enough, both can talk and listen at once - much like people can. That's called 'DUPLEXING', and it's fairly straightfoward. Introduce a third machine, though, and things start to get hairy.

In this case, assume we've got three machines, A,B and C. Both A and B want to talk to C at the same time. If they do, C will get confused, since it won't know which is saying what. To fix it, A and B assemble their information into small chunks called PACKETS, and put their signature on them (their NETWORK ID). A has a look at the network to see if anything is happening, and, if it's clear, sends a packet to C. Meanwhile, B has a look, and sees that A is sending, so waits. As soon as it's clear, B sends its packet.

C, on the other hand, sits there waiting, and is informed that a packet is coming for it, so it reads the network ID of the sender, and stores it away. When it gets the packet from B, it stores that separately, and acknowledges both packets as received.

Once C receives all the packets that A has to send, it acts on the instructions, and similarly with B. Thus, all three can talk together, with the network controlling whose turn it is to speak at any given time.

Now, this isn't an exhaustive treatise on networks – we haven't looked at the various topologies that exist, for instance. But, it ought to make the Superlink review a little easier to understand when you come to read it next month.

To give you a little foretaste, the network under test consists of two CPC6128 machines and an Amstrad 3386SX PC. I'll be slotting a 6128 PLUS into the net if I can as well. Thus far, it works beautifully – next month, all will be revealed.

BITS 'N' PIECES

For Sale

SENSATIONAL SOUND SAMPLER Analyser, editor for the CPC 6128, 464, 664 on 3" disc for £10 or cassette for £5. Send cheque/PO and SAE to Peter Wilkins, Pen-Y-Bryn, Engedi, Bryngwran, Anglesey LL65 4SW. Please state disc or tape.

CPC 6128 COLOUR MONITOR, joystick, 14 discs, 156 games including Iron Man, Carrier Command, Tusker, Untouchables and more! Light Pen, disc box, Speedtrans Plus 2 (Tape-disc utility). Great bargain at £520!! Telephone 0245 320089.

SSA1 SPEECH SYNTHESISER complete as new £15. Also business software for CPC464 and utilities: Laser compiler, machine code tutor, laser basic, assembly language course etc... Telephone 0592 264182.

AMSTRAD 6128 MONO MONITOR and software magazines. Still boxed, worth over £450. Will accept £220 ono. Telephone 021-743-8252.

AMSTRAD CPC464 GREEN monitor. Perfect working order £45 ono. Telephone 061-202-2452.

DKTRONICS 256K memory expansion for 6128. Unused £75 including postage and packing. Telephone 0531 821383.

AMSTRAD CPC6128 with colour monitor, joystick and Paperboy, Elite, Out Run and Ikari Warriors. Will sell for £200 ono. Telephone San jay on 071-621-1528.

GAMES FOR SALE, some at half price. For example: Super Hang-on at £4, Infiltrator for £4.50. Teenage Turtles £4. Passing Shot for £5 and The Amazing Spiderman for £6. For these and many more super offers, telephone Andrew on 0506 630258.

AMSTRAD CPC6128, colour monitor, cassette recorder, dustcover, joystick and £650 of games, magazines and books. Very good condition, total value over £1000. Will sell for £375. Phone 0237 477646.

OVER 50 ORIGINAL AMSTRAD GAMES, including Monty Python, Laser Squad, Bloodwych and Lords of Chaos. Worth over £450. Will sell for £175. Telephone 0400811045 and ask for James.

GAMES TO SWAP OR SELL Many top titles on tape and disc, including Italia 90, MicroProse Soccer, Forgotten Worlds, Batman. Ring for details after 4pm on 0628 32434.

ANY GAMES you can't get? I can get most games, even out of production ones. For details, send SAE to T.Keevil, 14 Pytchley Close, Brixworth, Northants NN8 8EW.

WOW SOFTWARE is a new company selling new and re-released adventure games for the Amstrad. Send SAE for latest list to WOW Software, 78 Radipole Lane, Weymouth, Dorset DT4 9RS.

SILICON DISC (DK Tronics) for Amstrad 6128. Large 256K capacity acts as drive B or C. Boxed with manual. Fast storage system retailed at £130, will accept £40 ono. Telephone 0294 70229.

Wants/Swaps

WANTED TYPE-INS from ACU No.1 to present day on cassette. Willing to pay, please phone 0297 53451 or write to Mike, 38 Courtenay Drive, Colyton, Devon, EX13 6QB.

WHERE OH WHERE can I buy software/hardware in Dublin? Also, how can I change games from tape to disc? For quicker loading please, please help me by writing to Derek Fox, 111 Lucan Heights, Lucan, County Dublin, Eire.

WANTED: SOFT 968 firmware manual. I'm willing to pay money just to borrow the darn thing. Phone now on 0924 251608 or you could be missing the offer of free money.

HELP NEEDED for Treasure Island Dizzy (i.e. positions of all thirty coins) and I wouldn't mind a Multiface poke for Rick Dangerous II. L. Young 20, Newton Avenue, Cullercoats, North Shields, Tyne and Wear NE30 3ND.

GAMES WANTED: Ashkeron, Brainless, Castle Dracula, Castle of Eagles, Colditz Escape, Faerie, Ice Station Zero, Island of Riddles, Magic Cottage, Magician's Ball, Old Scores, Robocide. Please write to Mark Eltringham, 39 Gargle Hill Thorpe St. Andrew, Norwich NR7 0XX.

EXCHANGE Pandora and Pipe Mania (disc) for Soft 968 Firmware Manual. Also Homebrew software wanted with right to distribute (Sprites Alive games etc..) Enclose SAE for return disc/tape. R. Dillon, 70 Highfern Gardens, Belfast BT13 3RE.

BEGINNERS GUIDE to machine code book wanted. Will swap for Easi-Amstrad tape. Any hints or tips on machine code gratefully accepted. J. Smallshaw, 85 Wotherell Road, Victoria Park, London E9. 081 533 3793.

I WOULD APPRECIATE HELP in search of Maxam 1.5 and help in how to use it. Also wanted, poke for Arkanoid. Contact Marilyn Hanson, 4 Maytree Lane, Waterthorpe, Sheffield S18 6HA.

INFINITE LIVES desperately needed for Arkanoid and hints for CRL's Rocky Horror Show would be gratefully accepted. Please write to Peter, 66 Sherwood Road, Rocklea, 4106 Brisbane, Queensland, Australia.

DECENT MACHINE CODE TUTORIAL books wanted for the CPC. Also wanted, an adventure writer such as Gac or Quill. B. Saunders, 70 Margeholes, Carpenders Park, Watford, Herts WD1 5AR.

WANTED PENFRIENDS to swap games, cheats and pokes. I have a 464 with extra 64K and Genius Mouse. Alwyn Williams, Swn-Y-Gwynt, Bodffordd, Anglesey, Gwynedd LL77 7DZ.

Services

WOW SOFTWARE is a new company selling new and re-released adventure games for the Amstrad. Send SAE for the latest list to WOW Software, 78 Radipole Lane, Weymouth, Dorset DT4 9RS.

AMSTRAD COMPUTER PARTS available for the entire range. Plus many computer accessories available. Just call or write to J. Hayward, 53 Eny Road, Cardiff CF5 2JF. 0222 554369.

HELP OFFERED on all aspects of BASIC and assembly language programming. Don't forget to send an SAE to Sean McManus, 286 Chertsey Rise, Stevenage, Herts. SG2 8JQ.

CONVERT your 464 to 6128. Keep 464 equipment and buy 6128 programs. Both will work. Microchip conversion carried out. All you need is disc drive. Contact R.J. Amison, 56 Drubbery Lane, Burton, Stoke-On-Trent. 0782 318548.

I HAVE STARTED A BUSINESS for people who want tailor-made programs for all CPC's. Also, does anybody have a Firmware Guide for the 464 to lend? Contact Mr Manning, 8 Steerforth Street, London SW18 4HH.

Fanzines

CPC FANZINE called Play Mates, issue seven due soon, full of reviews, tips, pokes and bonzo news with P&P just £1. Carl Surrey, 37 Fairfield Way, Barnet, Herts. EN5 2BQ.

AOK Fanzine, issues 2 and 3 out now. Includes features, reviews, type-ins, small projects and more. Send 60p (includes P&P) to Paul Escott, 31 Colebrook Road, Shirley, Solihull, West Midlands B90 2LB.

Penpals

CPC PENPALS wanted to swap games or demos on disc or tape. Send your lists to Carl Wilson, 64 Fishponds Road, Kenilworth, Warks., CV8 1EZ. Greetings to NWC and CBS!

PENPALS WANTED to swap games and demos on disk. Any age, any country. Help also given on new and old games. Write to Richard Wildey, 41 Enmore Gardens, London SW14 8AF.

There you go folks, more goodies from yourselves, for yourselves. There's plenty more in the pipeline, but we can't fit them all in at the same time, unfortunately. Don't forget, if the service is working for you, let us know, so that we can make room for more. If it isn't tell us and we'll make sure we put it right. It's all absolutely free, and the PIECES section should be up and running very shortly as well, so keep your eyes glued to this page for more details. Keep 'em coming folks.

AMSTRAD COMPUTER USER ACU BITS 'N' PIECES

Please send coupon to ACU, 116-120 Goswell Road, London EC1. Please place this ad in the next available space in Bits 'n' Pieces.

NAME ____________________

ADDRESS ____________________

DAYTIME TELEPHONE No. ____________

The cost of 1-30 words inclusive is absolutely FREE for private ads in Bits. For the Pieces section, just fill in a brief outline of your programe and let ACU do the rest.

SOMETHING FOR NOTHING

FOR ONE ISSUE ONLY YOU CAN SUBSCRIBE TO ACU AND GET FREE SOFTWARE. CHOOSE EITHER ADVANCED AMSWORD OR MASTERCALC. (BOTH ITEMS AVAILABLE ON TAPE ONLY.)



Fill in the coupon below and send it with your remittance to: MSM Subscriptions Department, Lazahold Ltd., P.O. Box 10, Roper street, Pallion Industrial Estate, Sunderland SR4 6SN. (The first issue of a new subscription to be delivered will be one or two issues after the one you placed your order in.) Offer closes 1st June 1991.

Please send me my 12/24 month subscription to ACU and my free copy of Advanced Amsword or MasterCalc. (indicate by circling). I enclose my cheque/money order for £ .... made payable to MCPC Ltd. or debit my Access/Visa card.

Card No...................... Expiry date......................
Name .... Address ....
....
(Please enter postcode to ensure prompt delivery)

Signed .... Date .... ACU 0591

UK £17.40 12 mth	Europe £31.00 12 mth	REST OF £43.00 12 mth
£34.80 24 mth	£62.00 24 mth	WORLD £86.00 24 mth

Printer Paradoxes

The Doc handles a couple of queries, and waxes lyrical about those machines that cause our readers the most problems – printers!

First in with a serious letter from HK Martin from Manchester. I don't intend to reproduce it in full, since, in some part, it's quite personal, and certainly shocking (no pun intended).

HK has a 13 year old grandson who enjoys playing Operation Wolf on his machine. He had complained of electric shocks in his fingers, but the next found him prostrate on the floor after 15-20 minutes of play.

The ensuing hospitalisation resulted in a diagnosis of 'Space Invader Convulsions', a condition the doctors described as being often found in young computer gamesters. The lad has to return to hospital for a brain scan.

HK asks 'I wonder whether you have come across this condition, and whether you can shed any light on its causes? I believe it may be caused by certain colours flashing at a critical frequency, but I have not seen the game to confirm this.'

Well, I do know, from personal experience, that flickering lights at the right frequencies can cause blackouts and unconsciousness, not disimilar from epileptic fits. It's one of the reasons that I never go to disco-type environments, purely because I've been carried out of too many after they've started their lights flashing and whirling. The point is, the frequency of the flashes is what causes the problem, and the critical frequency is different for individuals, although the range is not too large.

I haven't come across the condition you mention, but I feel that it's something we might investigate further, as it may have relevance to a sizable number of people. Thanks for the letter, and please give our regards and best wishes to your grandson.

Serial Links

Next on the line, a letter from Richard Keeton, from Beaulieu (Byoooly!) in Hants...

'Is it possible to link an IBM PC compatible and a CPC 6128 together via a serial link in order to transfer text and graphics files to and from each one? If it is possible, then how could this be done, and what software would be needed. The other question is about printer drivers. Is there a printer driver for the 6128 which will drive an HP Deskjet 500 for text and graphics?'

First things first. The serial link is a doddle – it's something I do on an almost daily basis, as I edit most of my text on my PC machines. The simplest way is to have comms software at either end of a null modem lead 'twixt the two machines and use Xmodem or Zmodem (in MEX or ZPMCPC under CP/M) to transfer the files. I run the link at 9600 baud, and have very few problems. However, there is another way, if it's something you need to do on a regular basis.

As you'll see from my article on Networks elsewhere in this issue, Nine Tiles have a system that will allow you to network your CPC into an IBM PC compatible, and thus do away with serial links altogether. It also has the double advantage that you can then store all your files on the PCs hard disk (assuming it has one). Keep reading for the next two issues to find out how it works, and whether it's a good buy.

Now, to your Printer problem. I don't know of a specific DJ500 driver for the CPC, but, if memory serves me right, the printer does have an Epson emulation - and quite a good one at that – built in. If you read further in this column, I think you'll discover that you will probably manage to drive it as far as text is concerned, but I doubt that you'll have much success with the graphics side of things. Why? Read on!!

In the beginning...

And it came to pass that Man created the typewriter, and Man was pleased with his work, and saw that it was good. But all in the Garden was not peace and light, for in the bosom of the tree of knowledge resided a foul creature, one with impious designs on Man, for whom he had no love.

And that creature created the printer, and was pleased with his work, and saw that it was, well, sort of OK, if you knew how to work it, if you see what I mean. And on the next day did he create his most impious design, the Printer Manual, and cackled with glee, for this was to be Man's undoing, as it spoke in tongues unknown to all men.

Apocryphal? Maybe. Accurate? Almost certainly. Printers and their associated problems generate more letters for this column than any other single item of kit or software – and when you think about it, you soon realise why.

Firstly, there's a factor of diversity. There are probably more printer types that you and I have had hot dinners (and I don't eat much salad!) Broadly speaking, there are Dot Matrix Impact, Dot Matrix Thermal, Daisywheel Impact and the Laser derivatives. Each of these can be driven either from a Serial (RS232C) or Parallel (Centronics) port. And then there are the emulations.

Emulation Working

Oh, boy do these cause trouble. There are two common types in Dot Matrix printers - IBM Proprinter and Epson. Epson what? Ah, well, that's the $64,000 question. You see, Epson have probably churned out more printer standards than anyone else - few of which are truly compatible with each other, and it's fairly easy to understand why.

When the first DMP came out, there was no requirement for high quality printing, italics, bold print, graphics and so forth – if you wanted a letter

typed, you had your secretary do it on the office Remington. Printers back then were just for churning out parts lists, inventories and so on - very dotty, slow, and not too reliable.

Thus was the first standard formulated. Nine pins, no frills. But then some bright spark realised that things could be improved, and so various knobs and whistles got added, and each time, Epson, the market leaders in printer technology for many years, produced a machine to fit the bill. So, you have FX80. EX80, LX80, JX80, GQ, ELP, the list goes on and on and on...

Other manufacturers, never really wanting to re-invent the wheel, looked at what Epson did, saw that it was good, and decided that, since so many people actually bought the things, and so many software houses made their programs work with the Epson printers, they would copy, or emulate, the way the Epson printers worked.

Now, that would be fine, if Epson had stuck rigidly to their own standards. To a large extent, they did, for the basic functions. But as facilities increased, so did the number of ways they approached the problem of how to tell the printer to do something.

And all of this was before 24 pin printers were even thought of. As you can imagine, another 15 pins simply compounded the problem. Now, not only did you need another lot of commands to do hoopy things with the extra resolution, people STILL wanted to be compatible with the older Epson models - even though they were inferior in every way. Why? Because their software was set up to use them, and we all know that the price of your computer and printer is soon outstripped by the cost of the software you gather (have a look at your own collection and add up the RRPs - you'll see what I mean).

To make matters even worse, IBM (who had been a typewriter firm for aeons) took their usual attitude, and reinvented the wheel just for the hell of it, creating yet another set of standards (remember, up until relatively recently, nobody ever got fired for buying IBM - so lots of IBM printers got sold). The result? Two sets of disparate standards, some of which weren't all that standard even in their own camps.

The final confusion comes from manuals. These were (some still are) written by the people that designed and engineered the software and hardware that makes up a printer. That presupposes that they KNOW how to work the damned things. I have no problem with that. However, I'm sure we've all come across people who are absolute whizz-kids in their field, but can't explain what they do for toffee. Why, oh why is it always THOSE people that write printer manuals??

The resultant tomes are inevitably a tangled mass of cross references, indecipherable code and terms that aren't explained anywhere in the same booklet. For years, printer manuals were printed in Japlish (a hybridisation of Japanese and English, with lots lost in translation) and had rotten line drawings that didn't tally with what you had in front of you.

And out of all of this, we poor users had to make some sense and get the things actually working. I well remember my first printer, a lowly 50CPS (Characters Per Second) Tandy DMP105 that was compatible with absolutely nothing but itself. Its manual went to great lengths to explain how its graphics mode worked, and I spent months (I kid you not) writing a BASIC program to perform a screen dump to it, taking shading and so forth into account to represent colours.

The task was not made any easier byt the information in the manual, in fact it was made harder, since the version of BASIC it used was peculiar to the Tandy computers - again incompatible with anything you'd ever come across, and with commands I couldn't hope to emulate with a single line of code in Amstrad Basic (or any others I had, and I had a few).

The final code took roughly an hour to run and finish, and the output wasn't that startling, much to my chagrin, but I learned a lot about reading printer manuals and how to find out how the actual machines work. I also went through lots of ribbons (and they weren't cheap then, either), and made a few more discoveries along the way.

Like, did you know that the more a ribbon cassette is designed to prevent you getting your hands dirty, the dirtier your hands get when you change it?? Like, did you know that there are more ribbon cassette types than there are printer types, and no matter how hard you look, you can never buy the one you need when you want it, but when you do find them, and buy half a dozen (having travelled from Edinburgh to London to do so) the shop round the corner from you suddenly gets hundreds in stock at a quarter of the price you've just paid for yours?

And there's more! Are you aware that your continuous paper is cunningly designed to be just that little bit longer than your printer thinks it is (or shorter)? And that the printer's shortest paper advance is not a sub-multiple of that discrepancy, so you can never get your output to start at the same place on two consecutive sheets.

And what about DIP switches? Why are they never marked with 'ON' and 'OFF'. Why are thay always positioned under concealed covers that break your nails when you try to shift them? And why does the point of the pencil always snap when you try to adjust the microscopic little beggars?

Colour

And then we come to colour. Another set of standards, another set of headaches, and even more gobbledygook in the manuals. You can bet your last beer token that the colour printer you've just bought isn't supported explicity by your software, simply because the software authors went out of business two years before the machine was invented. That's par for the course. The emulation factors get worse, purely because Epson didn't get in first (or at the right price, anyway), and the ribbons can cause major headaches.

For instance, I've discovered that fabric colour ribbons are good for one decent printout, and rapidly go downhill after that. Why? because of the way they work.

There are four bands on the ribbon, Cyan, Yellow, Magenta, and Black on the one I've had most recenly, or sometimes Yellow, Red, and Blue (with black). When the pins fire through the ribbon, they pick up some ink, and tranfer it to the next colour up it. Also, when the second colour is printed over the first, the ribbon picks up bits of damp ink from the page.

The result is plain to see – a muddy green yellow, a purple red, a blue that's a dark green, and only the black remains unscathed (until it, too, goes a muddy khaki colour), and that's only the ribbon! Hard copy degenerates into an artist's nightmare, more suited to Andy Warhol and Salvador Dali than the pristine vision you've got onscreen - and that's assuming you've managed to get it out to the printer.

Oh, yes, I LOVE printers – they keep me in work!! See you next month, and I bet there'll be a printer related problem or two in there!

Slappa dat Bass.

Ian Waugh gets down to the low point of the series and shows you how to put the deep notes into last month's sequencer.

A sequencer is a device which can be programmed with a set of notes and used to control a synthesiser module to produce a repeating riff or sequence of notes. Sequencers vary in their sophistication – some can only store a dozen notes, others can store several thousand.

As most synthesisers control pitch by voltage, ie the higher the voltage the higher the pitch, many sequencers actually store a list of voltages. These can be used to control any voltage controllable part of the synthesiser. Most synthesiser modules are designed to be governed by voltages and are called such things as VCO (Voltage Controlled Oscillator), VCA (Voltage Controlled Amplifier) and VCF (Voltage Controlled Filter). Every time we use a DATA statement to read in a string of notes we are, in effect, using a sequencer.

We can add a Bass Sequencer to the last program, which will play a riff and allow us to improvise over the top of it. This is common in electronic music and the use of sequencers has been popularised by such musicians as Tangerine Dream, Kraftwerk and Jean-Michel Jarre. The listing shows the lines we must add to last month's Program.

Commentary

The sequencer uses ENV 15 and ENT 15 which are defined in lines 60 and 70. The main routine, from lines 2010 to 2050 is as simple as can be – read note and play it. It uses ON SQ GOSUB which is primed in line 80 and rearmed at line 2040.

The program will run by itself if you add:

85 WHILE -1:WEND

Sequence data is terminated by two 0s.

Altering the bass riff

Extra sequences have been included in lines 2090 to 2110 for you to experiment with and new ones can easily be added. Try the sequence in line 2100 with a longer envelope such as:

ENV 15,1,15,1,1,-2,10,13,-1,15

Alter the tone envelope to suit.

The riffs in the program are quite simple but could be extended to any length by adding more data. You could even program the sequencer to play the complete bass line of a tune.

Developing the sequencer

You could add a rhythm to the sequencer based upon the ideas in Program 7.2 but you would lose the chorus facility. This would be quite interesting.

Apart from adding more envelopes, rhythms, sequences and effects, you might like to put a memory capability into the program so it remembers what you have played and can play it back. This could be very useful. If you are improvising and play a good sequence of notes it is not always easy to remember later what notes you played.

To accomplish this it would be necessary to include an incrementing variable in the program and to record the variable's value whenever a key is pressed or released. The notes would be stored in an array, the variable providing the subscript.

Taking the program even a stage further, if you added editing facilities, allowed envelope changes during playback and had facilities for altering pitch and tempo you would be on the way to a miniature recording console. It is certainly a worthwhile exercise.

If you want to control and alter music to such a fine degree, the difficulty of playing the QWERTY keyboard does not make your job easy. Perhaps a better and more suitable solution is to preprogram the entire piece and let the computer manage the difficult passages.

To play two- or three-part tunes; if the notes of all the channels have the same duration a simple program will do the trick, ie read notes and play them. Problems arise, however, when each channel contains notes of different durations.

The solution is to store the notes in arrays from which we can read and play a note when it's required. The ON SQ and rendezvous commands make our task quite easy.

Stereo positioning

I normally arrange the channels as follows:

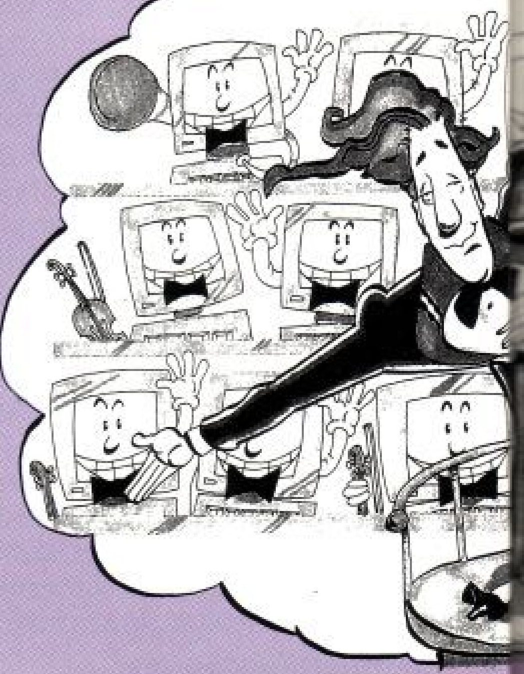
Channel A: Melody line. Channel C: Bass line. Channel B: Anything inbetween, often reinforcing the bass/accompaniment.

If the piece has a prominent bass line I sometimes program that first into channel A.

This tries to take into account the stereo positions of the voices. As some channels may be used to play more than one part, eg channel B, the stereo image may sometimes sound strange. The use of stereo is very effective and if you can connect the output to stereo speakers it is certainly worthwhile, not least for the increase in sound quality which larger speakers will bring. Even plugging in a pair of stereo headphones will enable you to appreciate the stereo effect. Generally, the melody will come from one side, the bass from the other and the inbetween parts from the centre.

The three voices are stored as independent sets of data and you can program any channel to play any voice. To experiment with stereo placings, read the data into different channels.

The melody and bass lines are the most important and set the character of the piece. I use channel B to fill in the harmony where required and it can switch from bass to melody as necessary. With this sort of arrangement, channels A and C will be dealt with before channel B, which may seem strange when you look through the listing.



The next program gives us control over five elements of each note. In practice, it is possible to employ some time-saving procedures – which I have done in certain cases – and you will find that you rarely have to enter five data items for each note.

Commentary

The variables pertaining to each channel are suffixed with their channel letter. I usually refer to the music parts as voices 1, 2 and 3 or A, B and C. The former seems more natural but the latter tells us which channel the voice will be played on.

va, vb and vc hold the number of notes in each voice. They refer to the number of notes per channel, not the number of data items.

Three arrays are dimensioned at lines 1130 to 1150 to hold information about each note. The first subscript refers to the following aspects of the note:

Subscript = 1: Status, ie channel number, rendezvous, flush, etc. Subscript = 2: Pitch number. Subscript = 3: Duration. Subscript = 4: ENV number. Subscript = 5: ENT number.

The tempo is set and envelopes are defined. The program links the volume and tone envelopes together so if a tone envelope is not defined it is good practice to reset it in case a definition has been left over from a previous program.

The next section sets the data into its relevant arrays and the process is repeated once for each channel. I have kept it this way to aid understanding although you might like to substitute a single array such as chan(3,5,n) to avoid the repetition. n would be the maximum number of notes in any channel, in this case equal to va. As the process is exactly the same for each channel we will only look at channel A in detail.

The screen is cleared and a message printed to let you know the computer is doing something. Some tunes can take a minute or two to digest and it's comforting to know the computer hasn't locked up.

A FOR/NEXT loop runs through the data, once for each note. The first step is a call to the routine at line 1740. This 'cautiously' examines the first item of data. If it begins with an ampersand (&) it knows it is a channel instruction and evaluates it to produce the channel status. It then reads note$ and dur. I have used hex notation to represent channel status because it is relatively easy to use and the ampersand tells us at a glance that this item is a status value. You could use decimal notation and ignore the ampersand. See Appendix II in the User Guide for further details of hex notation.

If the data item does not begin with an ampersand it is taken to be a note and a second item, dur, is read. As these have no specific status value, status is set ot 0. This method of assigning status values saves us having to enter a status value for each note. We only include one if it's required. The channel status is assigned in line 1290 where the channel number is added, in this case, 1.

A call is then made to line 1780 to analyse the note. This is the same routine as the one in Program 9.1 with one small change. If note$ is a rest, pitch is given the arbitrary value of 0: This shouldn't strictly be necessary but it may help in debugging if you scan through the arrays.

Next, note$ is examined to see if it is an 'R' which I have used to represent a rest. If it is, the volume envelope, ev, is set to 0. This produces a sound at a volume determined by the V parameter of the SOUND command which, under envelope control, we set to 0 so no sound will be heard. Otherwise, ev is set to the required envelope number. You can see this more clearly in lines 1440 and 1570 where only one other envelope is used.

Line 1310 is arranged to give certain notes certain envelopes. This saves us having to include an envelope number with the note data which would be time-consuming and rather a wasteful exercise if the envelope only changes once or twice throughout the piece. The tone envelope, et, is set equal to the volume envelope in line 1320. A similar routine to the one in line 1310 could be used to vary the tone envelope.

The next lines copy all this information into the relevant arrays.

Line 1380 lets us know the channel data has been stored.

At the end of these three sections, the arrays are filled with figures which the SOUND command can work on directly although they can still be altered as we shall see.

Line 1660 sets three variables which are used to check the number of notes sent to each channel. The next three lines prime the ON SQ commands. As the first notes are all set to rendezvous, the tune will begin in sync. By the time the sound chip has played the first notes, the computer should have processed a few more so keeping the buffers full. An alternative way to start the tune would be to issue a hold on the channels, fill them with notes and then issue a RELEASE command.

The routines at lines 1890, 1950 and 2010 are similar. Each time the routine is called, it adds 1 to the value of the voc variable. If this is greater than the number of notes in the channel, the routine returns and, not having reprimed itself, is not called again. The next line simply issues the SOUND command and the following line reprimes the interrupt. Even at this stage, we control the speed of the piece with tempo.

The WHILE/WEND loop at line 1770 does nothing. It just keeps the program running while the interrupts do the work.

You can alter the tempo (if you wish) and play the tune again by entering:

GOTO 1660

Modifications, alterations and suggestions

Once you have this program you will be able to play almost any three-part tune by inserting new data and altering a few variables.

If you arrange the data in lines of one bar it will aid editing and debugging.

When programming other tunes, if all channels do not start together, ie each sound a note at the start of the piece, be sure to include rests in the channels which are not used to keep them together.

You will notice that only the very first notes have been rendezvoused. Normally, this will be enough to keep most tunes together but you could add more rendezvous commands if required. The ON SQ interrupts allow BASIC to process other commands while sounds are being played. In this program, the looping at line 1700 is wasted. If the program was doing something else, it may be necessary to include more rendezvous commands.

Envelope changes are often tedious to enter. If your program requires a lot of envelopes you could arrange a separate routine to take care of this.

continued on page 58



◀ *Continued from page 57*

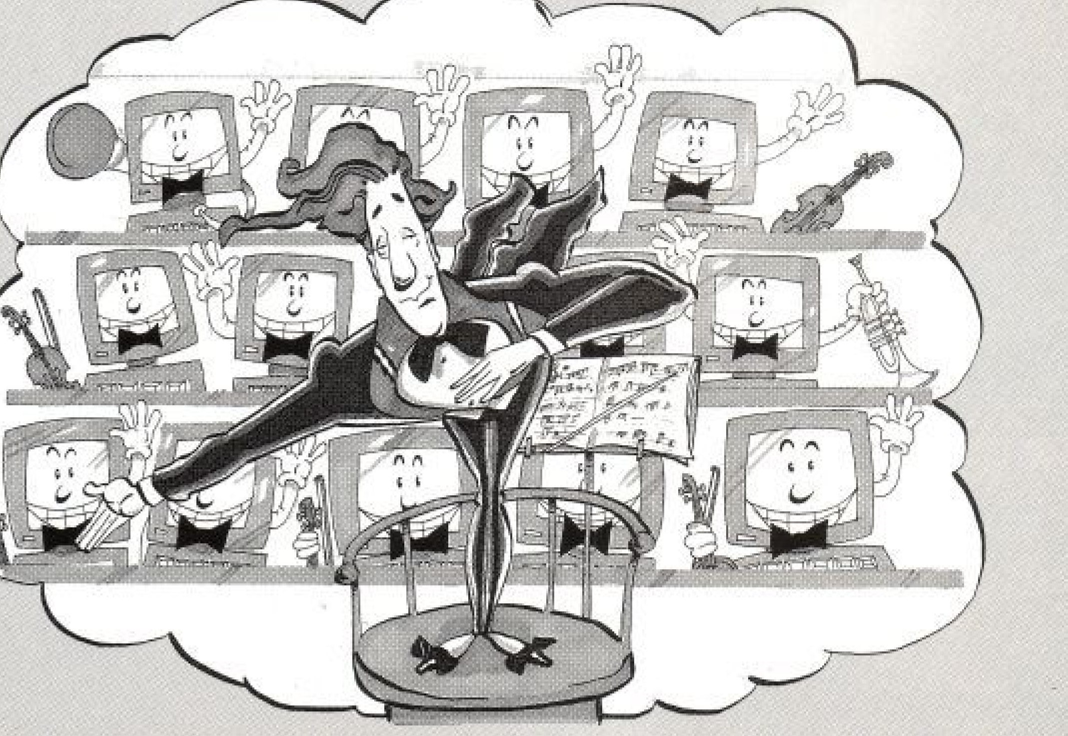
When calculating the note durations, the important thing is to get the relationship between the notes correct. Adjustments to the variable, tempo, can be effective, too.

Listing 1.

```
10 REM BASS SEQUENCER
20 REM Add these lines to last
month's proggy
30 REM
40 REM
50 tempo=4
60 ENV 15,1,15,1,1,-2,2,13,-1,5
70 ENT -15,2,3,1,2,-6,1,2,3,1
80 ON SQ(4) GOSUB 2010
90 :
2000 REM Sequencer routine
2010 READ pit,dur 2020 IF pit=0
THEN RESTORE 2070:GOTO 2010
2030 SOUND 4,pit,dur*tempo,0,15,15
2040 ON SQ(4) GOSUB 2010
2050 RETURN
2060 :
2070 DATA 804,6,
758,6,956,6,1073,12,1073,12,
1136,6,1073, 12,1073,6, 1136,6,1073,
6,1136,6,1073,6,956,6
2080 DATA
804,6,758,6, 956,6,1073, 12,1073,
12,1136,6,1073,12,1073,6,1136,6,1073,
24,0,0
2090 DATA 638,6,536,6,402,6,
426,6,0,0
2100 DATA
638,24,536,24,568,24,602,24,0,0
2110 DATA 638,6,638,6,536,6,470,
0,0
```

Listing 2.

```
1000 REM listing 2 1010 REM Mozart's
Rondo Alla Turca 1020 REM Using 3
Channels 1030 : 1040 va=4 6:vb
=29:vc=30 1050 : 1060 REM 1st Sub-
script refers to: 1070 REM 1=status
1080 REM 2=pitch 1090 REM 3=dur
1100 REM 4=ENV 1110 REM 5=ENT
1120 : 1130 DIM chana(5,va) 1140 DIM
chanb(5,vb) 1150 DIM chanc(5,vc)
1160 : 1170 scale$=" C C#D D#E F F#G
G#A A#B" 1180 tempo=4 1190 ENV
1,1,15,1,3,-1,4,12,-1,8 1200 ENT 1 1210
ENV 2,3,5,1,1,0,8,1,-2,4,13,-1,8 1220
ENT -2,1,1,3,1,-2,3,1,1,3 1230 ENV
3,1,15,1,3,-1,2,12,-1,6 1240 ENT 3 1250
: 1260 CLS:PRINT "Reading in note
data..." 1270 FOR n=1 TO va 1280
GOSUB 1740:REM Check Channel
Status 1290 chana(1,n)=status+1 1300
GOSUB 1780:REM Analyse Note 1310
IF note$="R" THEN ev=0 ELSE IF n=5
OR n=11 OR n=25 OR n=30 OR n=36
OR n=42 THEN ev=2 ELSE ev=1 1320
et=ev 1330 chana(2,n)=pitch 1340 chana
(3,n)=dur 1350 chana(4,n)=ev 1360
chana(5,n)=et 1370 NEXT n 1380
PRINT "Channel A Complete" 1390 :
1400 FOR n=1 TO vc 1410 GOSUB
1740:REM Check Channel Status 1420
chanc(1,n)=status+4 1430 GOSUB
1780:REM Analyse Note 1440 IF
note$="R" THEN ev=0 ELSE ev=3 1450
et=ev 1460 chanc(2,n)=pitch 1470
chanc(3,n)=dur 1480 chanc(4,n)=ev
1490 chanc(5,n)=et 1500 NEXT n 1510
PRINT "Channel C Complete" 1520 :
1530 FOR n=1 TO vb 1540 GOSUB
1740:REM Check Channel Status 1550
chanb(1,n)=status+2 1560 GOSUB
1780:REM Analyse Note 1570 IF
note$="R" THEN ev=0 ELSE ev=1 1580
et=ev 1590 chanb(2,n)=pitch 1600
chanb(3,n)=dur 1610 chanb(4,n)=ev
1620 chanb(5,n)=et 1630 NEXT n 1640
PRINT "Channel B Complete" 1650 :
1660 voca=0:vocb=0:vocc=0 1670 ON
SQ(1) GOSUB 1890 1680 ON SQ(2)
GOSUB 1950 1690 ON SQ(4) GOSUB
2010 1700 WHILE voca<va OR vocb<vb
OR vocc<vc:WEND 1710 END 1720 :
1730 REM Check Channel Status 1740
READ note$:IF LEFT$(note$,1)="&"
THEN status=VAL(note$):READ
note$,dur ELSE status=0:READ dur
1750 RETURN 1760 : 1770 REM Ana-
lyse Note 1780 IF note$="R" THEN
pitch=0:RETURN 1790
length=LEN(note$):IF length<2 OR
length>4 THEN PRINT "Error in
Note";n;note$:STOP 1800 IF length=2
THEN name$=LEFT$(note$,
1):oct=VAL(RIGHT$ (note$,1)):GOTO
1830 1810 IF length=4 THEN
name$=LEFT$(note$, 2):oct=VAL
(RIGHT$(note$,2)):GOTO 1830 1820
IF MID$(note$,2,1)="-" THEN
name$=LEFT$ (note$,1):oct= VAL
(RIGHT$(note$,2)) ELSE name
$=LEFT$( note$,2):oct=VAL (RIGHT$
(note$,1)) 1830 note=INSTR (scale$,
name$)/2 1840 freq=440*
(2^(oct+(note-10)/12)) 1850 pitch=
ROUND(125000/freq) 1860 RETURN
1870 : 1880 REM Channel A 1890
voca=voca+1:IF voca>va THEN RE-
TURN 1900 SOUND chana(1,voca)
,chana (2,voca),chana(3,voca)*tempo
,0,chana (4,voca),chana( 5,voca) 1910
ON SQ(1) GOSUB 1890 1920 RETURN
1930 : 1940 REM Channal B 1950
vocb=vocb+1:IF vocb>vb THEN RE-
TURN 1960 SOUND chanb(1,vocb),
chanb (2,vocb),chanb (3,vocb)*tempo,
0,chanb(4,vocb),chanb( 5,vocb) 1970
ON SQ(2) GOSUB 1950 1980 RETURN
1990 : 2000 REM Channel C 2010
vocc=vocc+1:IF vocc>vc THEN RE-
TURN 2020 SOUND chanc(1,vocc),
chanc(2,vocc), chanc (3,vocc)*
tempo,0,chanc(4,vocc),chanc(5,vocc)
2030 ON SQ(4) GOSUB 2010 2040
RETURN 2050 : 2060 REM Voice 1
2070 DATA &38,B0,3,A0,3, G#0,3,A0,3
2080 DATA C1,6,R,6,D1,3, C1,3,B0,3,
C1,3 2090 DATA E1,6,R,6,F1,
3,E1,3,D#1,3,E1,3 2100 DATA B1,
3,A1,3,G#1,3,A1,3,B1,3,A1,3,G#1,3,A1,3
2110 DATA C2,12,A1,6,C2,4,G1,1,A1,1
2120 DATA B1,6, A1,6,G1,6,
A1,4,G1,1,A1,1 2130 DATA B1,6,A1,
6,G1,6,A1,4,G1,1,A1,1 2140 DATA
B1,6,A1,6,G1,6,F#1,6 2150 DATA E1,12
2160 : 2170 REM Voice 2 2180 DATA
&38,R,12 2190 DATA A-1,6,C0,
6,C0,6,C0,6 2200 DATA A-1,6,C0,6,
C0,6,C0,6 2210 DATA A-1,6,C0,6,A-
1,6,C0,6 2220 DATA A-1,6,C0,6,
C0,6,C0,6 2230 DATA E-1,6,B-1,6,B-
1,6,B-1,6 2240 DATA E-1,6,B-1,6,B-
1,6,B-1,6 2250 DATA E-1,6,B-1,6,B-
2,6,B-1,6 2260 DATA E-1,12 2270 : 2280
REM Voice 3 2290 DATA &38,R,12
2300 DATA R,6,E0,6,E0,6,E0,6 2310
DATA R,6,E0,6,E0,6,E0,6 2320 DATA
R,6,E0,6,R,6,E0,6 2330 DATA
R,6,E0,6,E0,6,E0,6 2340 DATA
R,6,E0,6,E0,6,E0,6 2350 DATA
R,6,E0,6,E0,6,E0,6 2360 DATA
R,6,E0,6,R,12 2370 DATA R,12
```



Only
£24.95
Including VAT and p&p.
Save £5 on RRP of £29.95 when you order direct from Connect Software

MONEY MANAGER

Versions available for Amstrad PCWs and PC compatibles. Phone or write for details.

Amstrad CPC 464, 664 and 6128
(disc only)

Over 25,000 sold in UK alone

Financial management software for personal and/or small business use

Money Manager provides individuals, businesses and professional people with a simple yet powerful way of managing their financial activities. All transactions can be entered easily and then presented in a wide variety of reports, ranging from a detailed listing of expenditure for tax purposes to summaries showing, for example, how much money has been spent over the past twelve months on petrol or electricity. Reports can also be presented in graphical form as pie and bar charts.
The Money Manager package has over 25,000 users in the UK alone. It is the ideal program for people who find that traditional accountancy programs are too complicated, unweildy and time-consuming for their requirements.

- Any number of data files: Personal, Business, Accounts etc.
- 12 months per file, up to 100 entries (transactions) per month
- Move a file forward by a month at a time when required
- All options selected from the main menu
- Up to 9 user-defined accounts: Bank, Cash, Visa, Access etc.
- Up to 50 user-defined classes of income and expenditure
- A reference of up to 6 characters for each entry
- Your own descriptive text of 18 characters for each entry
- All the codes are displayed on screen whilst entering data
- Add, modify and delete existing entries at any time
- Quick insertion of standard entries and standing orders
- Entries can be sorted into date order automatically
- Single character 'mark' for even more selective reporting
- Reports showing each entry in a month or for whole year
- Reports may show classes merged into groups

- Spreadsheet type table showing class totals in each month
- Report showing class totals for each account
- Bar charts for up to 4 selected categories
- Pie charts of up to 10 selected 'slices'
- Report of monthly income, expenditure and cash-flow etc.
- Account statistics - monthly max, min, average, balance etc.
- Detailed Input and Output VAT reports
- Automatic calculation of VAT
- Simply ignore VAT features if they are not required
- Budget and cash-flow forcasts - may be updated
- Data search facility to find 'lost' items
- User-defined screen colours
- Comprehensive manual
- Two sets of sample data for practice and familiarisation
- Free telephone support for as long as you need it

Connect
Software Ltd.

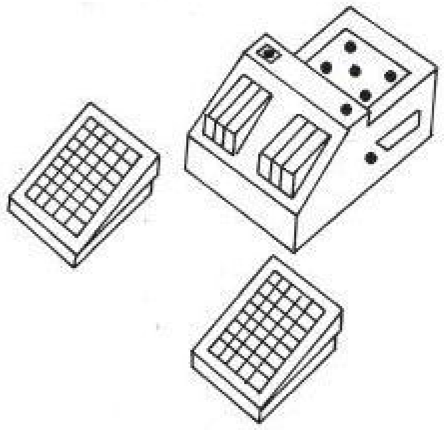
To receive your copy of Money Manager by return post phone us now with your credit card number, or write to us at the address below enclosing your cheque for £24.95

081 743 9792 8am-10pm, 7 days a week
Connect Software Ltd., 3 Flanchford Rd., London W12 9ND

VISA · ACCESS · AMERICAN EXPRESS

CpRs Design Technology

THE 'GAME-PRO Mk2' SERIES



PRICES START FROM £19.99 to £34.99

SEND SAE FOR OUR FULL HARDWARE AND SOFTWARE LIST....
MR. CHRISTOPHER PRICE, 70 POTTON ROAD, EYNESBURY - HARDWICKE, ST. NEOTS, CAMBS PE19 2NN
OR RING 0480 - 76038 FOR DETAILS (6pm-9pm)


MYTH - History in the making
ROAD TO HELL
Join our hero in his life or death quest to destroy the evil god, Dameron. LEVEL 1.
First I'll need some weapons...
Underground
...or I'll never get out alive!
The skeletons attack
Nnngh! Try these fireballs for size.
These skulls could come in handy later on.
The Guardian of the Globes.
Aargh! Got to get that globe!
At the firepit.
What happens if I drop the skulls in here, I wonder.


The beast is awoken.
I wished Id never asked!
What a pushover!
The Gateway to Hell
Guh! I've got to get to that key.
Just one more globe and I can get out of this godforsaken place!
Enter the dragon.
The teleport.
Gulp! Thanks to the gods. Now to find the teleport pod and escape.
The elixir of life.
Next stop: Ancient Greece and the confrontation with Medusa. Join in next month, if you dare.

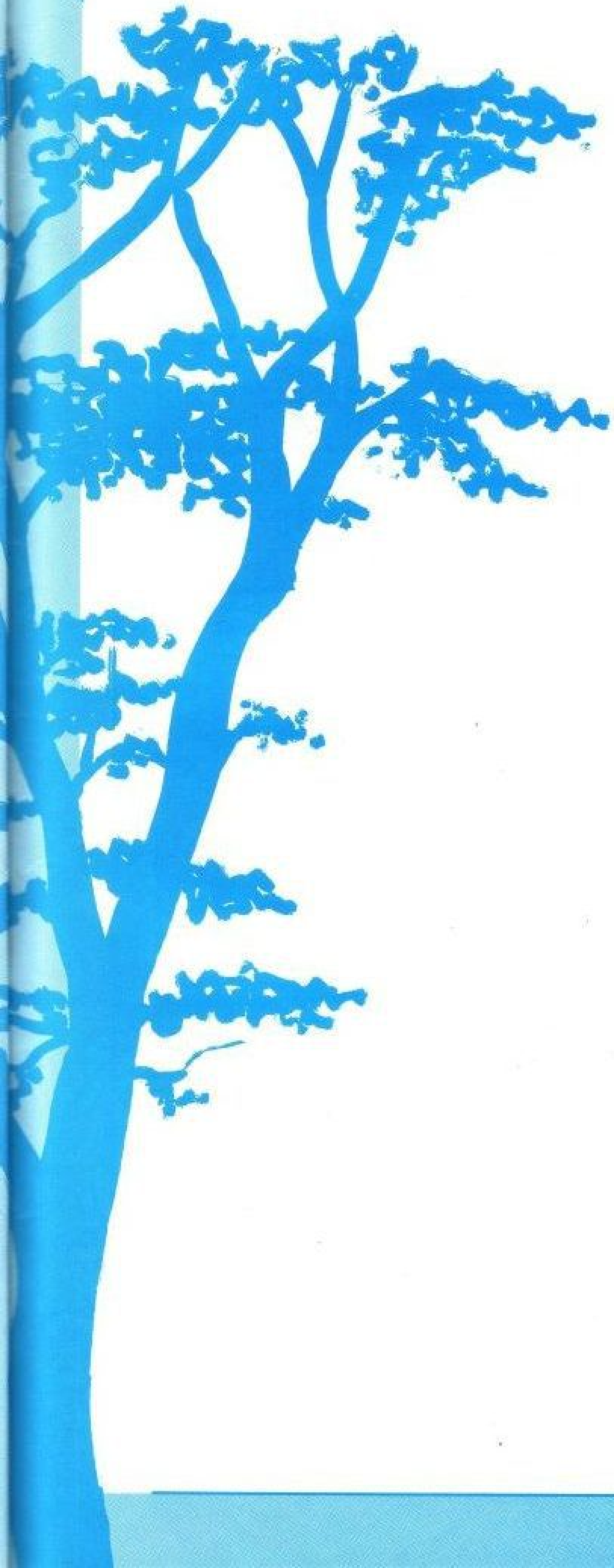
TREES

BY SIMON WATSON

With the environment very much in mind, here's your chance to create new trees, not destroy them. Run the program and read the on-screen menu for full instructions, before going out into the outback to design your very own patch of greenergy. Who knows, they may well be very useful to adapt for your own programs.



```
1 ' Trees
2 ' by Simon Watson
3 ' (c)1991
4 '
10 ON ERROR GOTO 1490
20 DEG
30 POKE &4000,0
40 POKE &5000,255
50 POKE &9000,0
60 POKE &9001,0
70 GOSUB 250
80    --- Menu ---
90 CLS:PEN 1
100 LOCATE 16,3:PRINT"Main Menu"
110 LOCATE 16,4:PRINT"---------"
120 PEN 2
130 LOCATE 12,7:PRINT"(1) Create a Tree"
140 LOCATE 12,9:PRINT"(2) Load a Tree"
150 LOCATE 12,11:PRINT"(3) Save Current Tree"
160 LOCATE 12,13:PRINT"(4) View Current Tree"
170 LOCATE 12,15:PRINT"(5) Exit Program"
180 PEN 3
190 LOCATE 11,22:PRINT"By Simon Watson (c)1991"
200 GOSUB 1510
210 IF z<1 OR z>5 THEN 200
220 IF z>2 AND z<5 AND PEEK(&5000)=255 THEN 200
230 ON z GOTO 440,1250,1290,1400,1450
240    --- Initialise ---
250 MODE 1:PAPER 0:BORDER 0
260 INK 0,0:INK 1,26:INK 2,19:INK 3,10
270 PAPER 1:PEN 2
280 LOCATE 18,1:PRINT"Trees"
290 WINDOW 1,40,2,25
300 WINDOW£1,1,40,7,25
310 WINDOW£2,15,25,8,8
320 PEN£2,2:PAPER 0
330 IF PEEK(&4000)=&21 THEN 420
340 MEMORY &3FFF
350 RESTORE 390
360 FOR n=&4000 TO &4017
370 READ a$:POKE n,VAL("&"+a$)
380 NEXT
390 DATA 21,00,c0,11,00,50,01,00
400 DATA 40,ed,b0,c9,21,00,50,11
410 DATA 00,c0,01,00,40,ed,b0,c9
420 store=&4000:view=&400C
430 RETURN
440    --- Create a Tree ---
450 CLS:PEN 1
460 LOCATE 14,3:PRINT"Create a Tree"
470 LOCATE 14,4:PRINT"-------------"
480 PEN 2
490 LOCATE 14,7:PRINT"(1) Skeletal 1"
500 LOCATE 14,9:PRINT"(2) Skeletal 2"
510 LOCATE 14,11:PRINT"(3) Normal"
520 LOCATE 14,13:PRINT"(4) Bushy"
530 LOCATE 14,15:PRINT"(5) Extra Bushy"
540 LOCATE 14,17:PRINT"(6) Previous Menu"
550 GOSUB 1510
560 IF z=6 THEN 80
570 IF z<1 OR z>5 THEN 550
580 type=z:CLS£1
590 FOR n=1 TO 220:NEXT
600 LOCATE 14,7:PRINT"(1) Random"
610 LOCATE 14,9:PRINT"(2) Regular"
620 LOCATE 14,11:PRINT"(3) Previous Menu"
630 GOSUB 1510
640 IF z<1 OR z>3 THEN 630
650 IF z=3 THEN GOTO 440
660 IF INKEY(57)>-1 THEN GOTO 440
670 r=z-1
680 MODE 2
690 RESTORE 1150
700 FOR n=1 TO type
710 READ p1,p2,p3,p4,p5
720 READ h,r1,r2,r3
730 NEXT
740 a(0)=(p1/(p3-1))/p4:b(0)=h
750 FOR n=1 TO p5-1
760 a(n)=a(n-1)*p4
770 b(n)=b(n-1)*p2
```



```
780 NEXT
790 nx(0)=320:ny(0)=0
800 nn(0)=p3-1:na(0)=90
810 xmin=640:c=0
820 PEN 1:LOCATE 1,1
830 PRINT"Drawing Tree - Please Wait"
840 PRINT"Press SPACE to abort"
850 RANDOMIZE TIME
860 ' --- Drawing Loop ---
870 MOVE nx(c),ny(c)
880 IF r=0 THEN a1=a(c)*(1-r3+(RND*r3*2)) ELSE a1=
a(c)
890 IF r=0 THEN a2=a(c+1)*(1-r3+(RND*r3*2)) ELSE a
2=a(c+1)
900 IF r=0 THEN b1=b(c)*(r1+RND*r2) ELSE b1=b(c)
910 nnx=nx(c)+b1*COS(na(c))
920 nny=ny(c)+b1*SIN(na(c))
930 DRAW nnx,nny
940 IF nnx<xmin THEN xmin=nnx
950 IF INKEY(47)>-1 THEN 1130
960 nn(c)=nn(c)+1
970 nx(c+1)=nnx:ny(c+1)=nny
980 na(c+1)=na(c)-(a2*(p3-1))/2
990 nn(c+1)=0:na(c)=na(c)+a1
1000 IF nn(c)=p3 AND nn(c+1)=p3 THEN c=c-1:GOTO 10
40
1010 IF nn(c)=p3 AND c=p5-1 THEN c=c-1:GOTO 1040
1020 IF c=p5-1 THEN 860
1030 c=c+1:GOTO 860
1040 IF c=-1 THEN 1060
1050 IF nn(c)<p3 THEN 860 ELSE 1000
1060 ' --- End of Drawing Loop ---
1070 LOCATE 1,1
1080 PRINT STRING$(26,32)
1090 PRINT STRING$(20,32)
1100 CALL store
1110 POKE &9000,INT(xmin/256)
1120 POKE &9001,xmin-(PEEK(&9000)*256)
1130 GOSUB 240:GOTO 80
1140 ' --- Tree Data ---
1150 DATA 70,0.6,3,0.7,5
1160 DATA 120,0.8,0.4,0.5
1170 DATA 80,0.8,5,0.8,4
1180 DATA 120,0.8,0.4,0.1
1190 DATA 120,0.65,3,0.8,6
1200 DATA 130,0.8,0.4,0.4
1210 DATA 110,0.8,5,0.8,5
1220 DATA 110,0.9,0.2,0.1
1230 DATA 110,0.8,7,0.8,5
1240 DATA 120,0.6,0.4,0.1
1250 ' --- Load a Tree ---
1260 GOSUB 1330
1270 LOAD f$,&5000
1280 GOTO 80
1290 ' --- Save Current Tree ---
1300 GOSUB 1330
1310 SAVE f$,b,&5000,&4002
1320 GOTO 80
1330 CLS:PEN 1
1340 PEN 1
1350 LOCATE 7,5
1360 PRINT"Enter Filename (max=8 chars)"
1370 INPUT£2,f$
1380 f$=MID$(f$,1,8)+".bin"
1390 RETURN
1400 ' --- View Current Tree ---
1410 MODE 2:PEN 1
1420 CALL view
1430 LOCATE 1,1:PRINT"Press SPACE to Continue"
1440 IF INKEY(47)=-1 THEN 1440 ELSE 1130
1450 ' --- Exit Program ---
1460 MODE 2:PEN 1
1470 PRINT"Bye!!":PRINT
1480 END
1490 ' --- Error Detected ---
1500 FOR n=1 TO 1000:NEXT:GOTO 80
1510 ' --- Keyboard Scan ---
1520 CALL &BB03
1530 z$=UPPER$(INKEY$)
1540 IF z$="" THEN 1530
1550 z=ASC(z$)-48
1560 RETURN
```

Stringing along

Glynne Davies shows you how to get to grips with strings on the way to mastering BASIC. It's easy. Just like that.

The manipulation of information within the computer is this month's subject. Most of the information taken into the computer is stored in strings, in most programs it will be necessary to extract part of the information held within these strings, this ability to interrogate a string is one of Basic's best features.

String Handling

A string is a series of characters, either alphabetical, numeric or a mixture of the two (alphnumeric). It is often necessary to search within a string for a certain character or word, perhaps, extracting part of the string. (i.e. Split a telephone number into the Std code, area code and number). The string handling functions within Basic are probably the most comprehensive of any computer language allowing database type programs to be created with ease.

NEW KEY WORDS

LEFT$(word$,5) Copy the first 5 characters from word$.
RIGHT$(word$,3) Copy the last 3 characters from word$.
MID$(word$,3,6) Copy 6 characters from word$ starting at the third character from the beginning.
INSTR(word$,search$) If the string search$ exists within word$ the position is returned as a number, that number is the number of characters from the beginning of word$. If 0 is returned then search$ can be one or more characters.
UPPER$(word$) Make a copy of word$ in uppercase (Capital Letters)
LOWER$(word$) Make a copy of word$ in lowercase.
VAL(word$) Copy any number held at the beginning of word$ and make it a numeric variable.
CHR$(number) Return the CHaracteR represented within the computer.
ASC(character$) Return the number with which the haracter is represented within the computer. (American Standards Code)

Examples. Program 1 (STRHAND1)

```
10 REM Demo of LEFT$, RIGHT$, MID$, UPPER$, LOWER$ AND INSTR
20 REM Manipulating strings
30 REM
40 MODE 1
50 name$="AMSTRAD":comp$="computer"
60 title$=name$+" "+comp$
70 LOCATE (40-LEN(title$))/2,2: PRINT title$:REM LEN is the length of the string
80 LOCATE 3,4:PRINT LEFT$ (title$,3);" Three characters from the left"
90 LOCATE 3,6:PRINT RIGHT$ (title$,5);" Five characters from the right"
100 LOCATE 3,8:PRINT MID$ (title$,4,9); "Start four characters from the left and print the next 9 characters"
110 LOCATE 3,14:PRINT INSTR (title$,"om"); "Prints the position of the second string within the first stirng"
120 LOCATE 3,18: PRINT UPPER$ (title$);"Change the characters into upper case"
130 LOCATE 3,22: PRINT LOWER$ (title$); "Change the characters into lower case"
140 END
```

Program 2 (STRHAND2)

```
10 REM **** LEFT$ and RIGHT$ ******
20 REM Using loops to manipulate strings
30 MODE 1
40 INPUT "Enter a small sentence"; sen$
50 CLS
60 FOR n=1 TO LEN(sen$):REM LEN(sen$) means length of sen$
70 LOCATE 1,n:PRINT LEFT$ (SEN$,N):REM print n characters from the right at position 39-n
90 NEXT
100 END
```

Program 3 (STRNUM)

```
10 REM * Strings to numbers and back *
20 CLS
30 REM Convert strings to numbers and set a string given a number
40 INPUT "Enter a four digit number";num$:REM The number is taken in as a string. Try Entering a six digit number
50 IF LEN(num$)>4 THEN num$=LEFT$(num$,4):REM When a number is held as a string the length of the number can be found. This sets the number to 4 digits
60 no=VAL(num$):REM Val extracts the number from the beginning of num$
70 PRINT "The number is ";no;" and the square is ";no^2):REM Notice when a number is set up a string a space is included at the front of the string, this may need to be removed
100 FOR n=1 TO LEN (square$)
110 PRINT MID$ (square$,n,1);: REM Print each character of the string
120 FOR w=1 TO 2000: NEXT:REM a short wait
130 NEXT n
140 END
```

Program 4 (SCROLLER)

```
10 REM Scroller
20 WHILE scroll$=""
30 MODE 1
40 LINE INPUT "Enter a name or sentence"; scroll$
50 IF LEN (scroll$)>215 THEN scroll$=LEFT$(scroll$,215): REM ensure string keeps to 255 max
60 WEND
70 blkscr$=SPACE$(39)+scroll$:REM add 39 spaces to the front of scroll$
80 k$="":WHILE k$="":REM While k$ is null
90 k$=INKEY$:REM Press any key to stop
100 LOCATE 1,12: PRINT LEFT$(blkscr$,40): REM Print 40 characters at the front of the string
110 add$=LEFT$(blkscr$,1): REM Make a copy of the first character
120 blkscr$=RIGHT$ (blkscr$,LEN (blkscr$)-1)+add$: REM make a new string missing the first character and placing the first character on the end of the new string.
130 WEND
140 END
```

The Character Set

When you switch on the machine the character set is copied from the ROM (Read Only Memory) to the RAM (Random Access Memory). This allows the programmer to change the character set. Each character is represented by eight numbers, each time the character is placed on the screen these eight numbers are used for the display, change the numbers and you change the display. The next program displays the standard character set.

Program 5 (CHARSET)

```
10 REM Standard character set
20 MODE 1:REM Set to 40x25
30 FOR code=32 TO 255: REM American Standards Code range from 32 to 127, codes below 32 can effect the screen.
40 PRINT "The number is ";code;" the character = ";CHR$(code)
50 REM use CHR$ to print any characters above 127
60 PRINT TAB(10); "Press a key to continue": CALL &BB18:REM wait for key press
70 NEXT code: END
```

Program 6 (ASCCODES)

```
10 REM ASCII codes of characters
20 MODE 1
30 WHILE k$<> " ":REM Place a space between the inverted commas
40 k$=INKEY$:REM Scan keyboard
50 IF LEN (k$)>0 THEN PRINT "The ASCII code for that key is ";ASC (k$):REM If a key is pressed print its ASC value
60 WEND:REM Press the spacebar to leave the loop
70 END
```

ASCII codes below 32 are used to control the display, four useful codes are CHR$(8) <Back space> CHR$(9) <Forward space> CHR$(10) <Down space> CHR$(11) <Up space>, these move the cursor without removing any character below the cursor. You can use these CHR$ codes to produce a string which will print vertically.

Program 7 (VERTICAL)

```
10 REM Print vertically using CHR$(8) and CHR$(10) (back and down)
20 MODE 1:word$="VERTICAL"
30 downback$= CHR$(10)+CHR$ (8):REM Move the cursor down and back when printed
40 FOR loop=1 TO LEN(word$)
50 vertical$=vertical$+MID$ (word$, loop,1) +downback$:REM Develop a string V+CHR$(10)+ CHR$ (8)+E+ CHR$(10)+CHR$(8)+R etc
60 NEXT
70 LOCATE 20,5:PRINT vertical$: END:REM Change the program to print up!
```

REDEFINING CHARACTERS

New Keyword

SYMBOL code,L1, L2, L3, L4, L5, L6, L7, L8

Allows you to chang the shape of the character with an ASC value (code), the eight numbers L1 to L8 are the binary shape from top to bottom

SYMBOL AFTER n You can redefine only 16 characters from 240 unless this command is given. n is the ASCII code. If SYMBOL AFTER 32 is given all codes can be changed.

Program 8 (STRBLOCK)

```
10 REM Print a block using ABCD. Usually characters above 127 would be redefined.
20 MODE 0
30 SYMBOL AFTER 32
40 REM SYMBOL 65, Capital A – Use the Redefine program below to design a shape for these four letters so that when they are printed together they form a large shape.
50 REM SYMBOL 66, Capital B when you have placed the 8 numbers here remove the REM
60 REM SYMBOL 67, C
70 REM SYMBOL 68, D
80 sprite$="AB"+CHR$ (10)+CHR$ (8) +CHR$(8)+"CD":REM AB on top of CD
90 LOCATE 10,10:PRINT sprite$
100 REM Run this program to see the result and then add 8 numbers separated with commas to each of lines 40,50,60,70 removing the REM in each case. Use the next program to decide the shape.
110 REM To return to normal ABCD reset the computer.
```

Space has beaten me this month I was hoping to cover arrays as well, I will have to cover them next month with sorting routines, the next program is a useful program to help you design your own characters, as usual you should be able to understand some of the lines.

```
2 REM by GLYNNE DAVIES
5 REM Simple redefine character program
10 MODE 1:DIM t(8), t$(8):REM DIM t(8), t$(8) reserve space for eight numeric variable and 8 string variables
20 PAPER 0:REM set background to colour 0 (black)
20 PEN 2:x=1 :y=1: REM Use colour 2, set variables x and y to 1
40 GOSUB 340: REM redefine character number 250 to a square for the cursor
50 FOR n=1 TO 8:REM begin loop from 1 step 1 to 8. loop ends at line 110
60 PRINT n;:REM at each time around loop print the value of n.i.e. 12345678
70 FOR m-1 TO 8:REM start a loop inside the other loop (nested loop) from 1 to 8
80 PRINT CHR$(233);:REM print out a row of 8 square blocks when loop 70 to 90 is complete
90 NEXT:REM go back to 70. at line 70 if the value n goes above 8 the program flow goes to line 100
100 PRINT:REM move the cursor down a line
110 NEXT:REM repeat loop beginning at line 50
120 PRINT " 16318421":REM print these numbers under block
130 PRINT " 2426"
140 PRINT " 8"
```

150 PRINT CHR$(22); CHR$(1):REM This code allows a character to be printed on top of another without totally remvoing the original

155 GOSUB 370:REM set up screen

160 WHILE fin=0:REM start of a loop, fin is used as a condition, while fin remains at 0 the loop will continue

170 PEN 0

180 LOCATE x+3,y:REM position the cursor at x+3 (left-right) and y (down)

190 PRINT CHR$ (250):REM print redefined square

200 k$=INKEY$:REM If a key is pressed set k$ to that key

205 IF k$="e" OR k$="E" THEN fin=1:REM If E is pressed end the program, at line 160 condition fin now equals 1 and therefore the loop will be missed and program flow go to line 335

210 IF k$="c" OR k$="C" THEN RUN: REM If key C is pressed re-run the program (cancel option

215 REM line 220: If number 1 is pressed see if the pixel at that position is colour 2 (TEST) and if so print a red square: Do a sum and then use the sub-routine at 370 which calculates the binary number and redefines character

220 IF k$="1" AND TEST (16*(x+2)+8,400-(y*16-8))=2 THEN PEN 3:LOCATE x+3,y:PRINT CHR$ (233):sum=(2^(8-x)):GOSUB 370

240 IF k$="." OR k$=">" THEN x=x+1:REM If key > is pressed increase x by 1

250 IF k$="," OR k$="," THEN x=x-1:REM If key < is pressed decrease x by 1

260 IF k$="1" THEN p=3

270 IF x>8 THEN y=y+1:x=1:REM move cursor down a line set x to 1

280 IF x<1 THEN x=8:y=y-1:REM move cursor up a line set x to 8

290 IF y>8 THEN y=8:REM restrict y to a maximum of 8

300 IF y<1 THEN y=1:REM restrict y to 1

310 PEN 1:LOCATE x+3,y:PRINT CHR$(250):REM print the cursor in pen 1

320 FOR n=1 TO 10: NEXT:REM short rest loop

330 WEND:REM send program flow back to WHILE on line 160

335 CLS:PEN 1:PRINT "program end":END

340 REM cursor data

350 SYMBOL 250,255,129,129,129,129,129,129,255:REM Redefine character 250 to a box

360 RETURN

360 REM calculate addition

380 PEN 1

390 t (y)=t(y)+sum

395 REM line 400: sorts out symbol print out data

400 FOR n=1 TO 8:t$(n)=STR$(n)):t$(n)=","+RIGHT$(t$(n),LEN(t$(n))-1):NEXT n:REM sets up t$(n) to ",126" etc adds a comma and loses a space

410 binary$=BIN$ (t(y)):binary$=STRING$(8-LEN(binary$),"0")+binary$:REM add 0s to binary number

420 PRINT CHR$(22);CHR$(0):REM switch back to normal printing

430 LOCATE 18,y:PRINT SPACE$(14)

440 LOCAE 18,y:PRINT binary$;"="t(y): REM print binary number

450 SYMBOL 255,t(1),t(2),t(3),t(4),t(5),t(6),t(7),t(8):REM redefine character 255

460 PEN 2:LOCATE 10,20:PRINT CHR$ (255);: PEN 1:PRINT SPACE$(10); CHR$(255); CHR$(255);: PEN 3:PRINT SPACE$(9); CHR$(255): REM print out examples of new character

470 LOCATE 1,16: PRINT "The line needed to re-define this shape"

480 LOCATE 1,22:PRINT SPACE$(40): REM print 40 spaces

490 LOCATE 1,22:PRINT "SYMBOL X"; t$(1);t$(2);t$(3);t$(4);t$(5); t$(7); t$(8):REM print out symbol data

500 PRINT CHR$ (22); CHR$(1): REM re-set over-write mode

510 RETURN:REM end of sub-routine go back to the end of the gosub line^Z

Here it is at last: your chance to say what you think about ACU. Just fill in all the questions below, and your entry will be put into a special ACU prize draw, with an assortment of up to the minute games and serious software goodies going to the first entry pulled out of the sack. So get answering and send off your questionnaire now.

About You

1. If you have a company how many people does it employ

☐ Under 10 ☐ 51-100
☐ 11-25 ☐ 101-500
☐ 26-50 ☐ over 500

2. What is your:

Age ______ Sex _______ Occupation ___________

3. What is your annual income (if applicable)?

☐ At School/College
☐ Less than £5,000 ☐ £20,000-£24,999
☐ £5,000-£9,999 ☐ £25,000-£29,999
☐ £10,000-£14,999 ☐ £30,000-£40,000
☐ £15,000-£19,999 ☐ More than £40,000

4. What is your name and address? (This information will be used to notify you of any prize you may have won)

____
____
____

5. In which TV region do you live?

☐ Grampian ☐ STV ☐ Border ☐ Granada
☐ Yorkshire ☐ Tyne Tees ☐ Central ☐ Anglia
☐ TV South ☐ Thames ☐ TSW ☐ HTV (West)
☐ Ulster ☐ HTV (Wales) ☐ Any other

About your computer

6. What kind(s) of the following computer(s) do you own?

N.B. If you OWN more than one computer, please indicate which you bought first (1), second (2), etc.

☐ CPC 464 ☐ CPC 664
☐ CPC 6128 ☐ 464+
☐ 6128+ ☐ GX4000 console
☐ Spectrum ☐ Commodore
☐ Atari ☐ Amiga
☐ Any other ___________________________

7. What kind(s) of the following computer(s) do you have access to at work/ school?

N.B. If you have access to more than one, please indicate which you use most (1), then the next (2), and so on.

☐ 464 ☐ 6128
☐ CPC+ ☐ Spectrum
☐ Commodore ☐ Atari
☐ Amiga ☐ PC
☐ PCW ☐ Mac
☐ Any other ___________________________

8. The following is a list of features which could be important when buying a computer. Please indicate how *important* each is by ticking the appropriate box for each feature.

	Very	Quite	Fairly	Not at all
Price	☐	☐	☐	☐
Speed	☐	☐	☐	☐
Backup and Service	☐	☐	☐	☐
Availability	☐	☐	☐	☐
Personal recommendation	☐	☐	☐	☐
Magazine reviews	☐	☐	☐	☐
Your own computer experience?	☐	☐	☐	☐

☐ Any other ___________________________

9. For how long have you owned your CPC?

☐ Less than 6 months ☐ 6 months - 1 year
☐ 1 year - 2 years ☐ More than 2 years

10. Do you use a printer?

☐ Yes ☐ No

If you answer yes, is it a:

☐ 9-pinl (model ______________)
☐ 24-pin (model ______________)
☐ Ink jet (model ______________)
☐ Laser printer (model ______________)

11. Do you use a modem?

☐ Yes ☐ No

12. Which computer language do you use to write programs on your computer?

☐ Basic ☐ Machine Code ☐ Any other

13. Do you ever use public domain software?

☐ Never ☐ Seldom ☐ Often

Your computing activities

14. How do you usually buy your computer products?

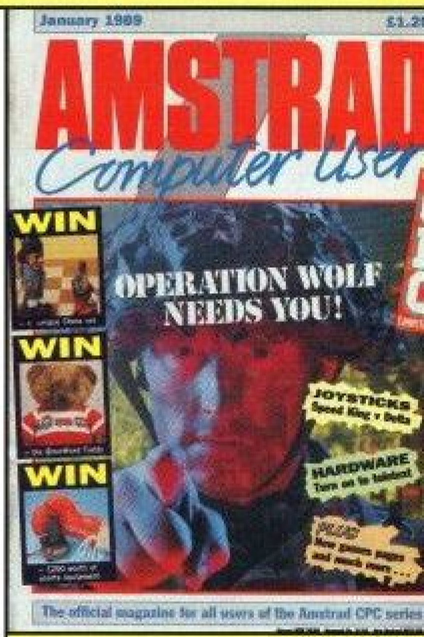
	Software	Hardware
By mail order	☐	☐
From computer shops	☐	☐
From high street stores	☐	☐

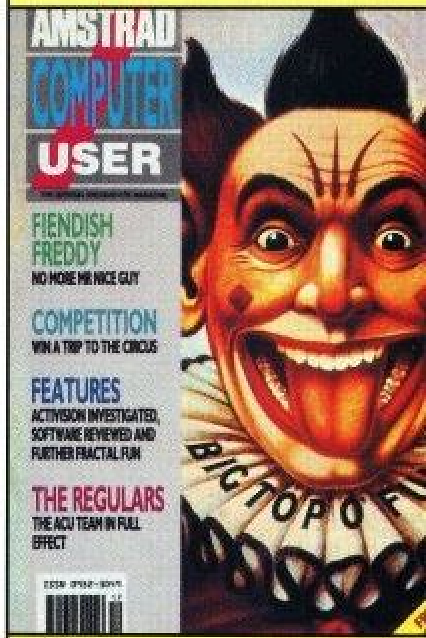
15. For each of the following applications, please indicate whether you own or otherwise have access to a particular program?

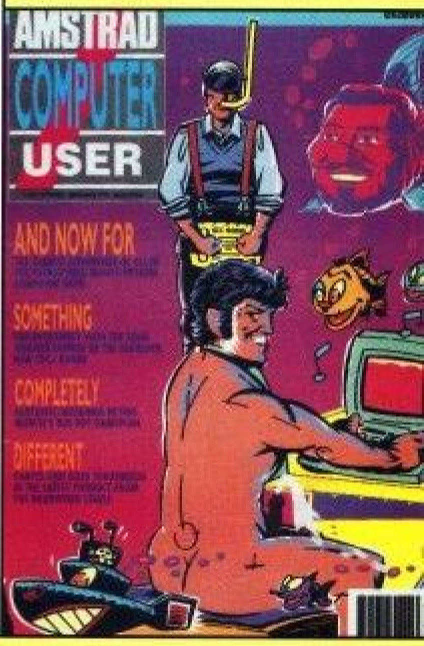
	Own	Have access to	Program(s)used (if applicable)
Communications	☐	☐	________
Word processing	☐	☐	________
Database	☐	☐	________
Accounts	☐	☐	________
DTP	☐	☐	________
CAD	☐	☐	________
Graphics	☐	☐	________
Education	☐	☐	________
Spreadsheet	☐	☐	________
Leisure (games)	☐	☐	________
Computer languages	☐	☐	________
Integrated software	☐	☐	________

16. In terms of CPC computing, how would you rate your knowledge?

☐ Expert ☐ Quite good ☐ Average
☐ Not Good ☐ Newcomer











17. Where do you do most of your computing:

☐ At work ☐ At home ☐ At school

18. Over the next 12 months, roughly how much do you think you will spend on:

	Software	Hardware
Nothing	☐	☐
Under £100	☐	☐
£500-£1000	☐	☐
Over £1000	☐	☐

About ACU

19. Do you obtain ACU from:

A newsagent 'off the shelf'	☐
A newsagent on a monthly order	☐
A subscription from the magazine	☐
A friend	☐

20. Do you often see ACU on your newsagent's stands?

☐ Yes ☐ No

21. Do you ever experience any difficulty obtaining ACU?

☐ Yes ☐ No

22. For how long have you been reading ACU?

☐ 0-3 months ☐ 3-6 months ☐ 6-9 months
☐ 9-12 months ☐ 12-18 months ☐ +18 months

23. In general, how much do you like the following kinds of articles when they appear in ACU?

	A lot	Quite a lot	OK	Not much	Not at all
Software reviews	☐	☐	☐	☐	☐
Hardware reviews	☐	☐	☐	☐	☐
Printer reviews	☐	☐	☐	☐	☐
Book reviews	☐	☐	☐	☐	☐
Games reviews	☐	☐	☐	☐	☐
Communications	☐	☐	☐	☐	☐
Features on applications	☐	☐	☐	☐	☐
News pages	☐	☐	☐	☐	☐
Technical pages	☐	☐	☐	☐	☐
Programing tutorials.	☐	☐	☐	☐	☐
Programing hints and tips	☐	☐	☐	☐	☐
Program listings	☐	☐	☐	☐	☐
Editorial	☐	☐	☐	☐	☐

24. Is there any kind of article you feel we don't cover frequently enought (if at all)?

____

____

____

25. Do you regularly keep back issues of ACU?

☐ Yes ☐ No

If you answered YES, how often do you refer back to issues of the magazine?

At least once a week	☐		
Once every 2-3 months	☐	Less frequently	☐
About once a month	☐	never	☐

26. For how long would you say you spend reading your copy of ACU?

☐ Less than ½ hour ☐ ½ hour - 1 hour
☐ 1-1½ hours ☐ 1½ hour - 2 hours
☐ Over 2 hours

27. Does anyone else read your copy of ACU?

☐ No, only myself ☐ 3-4 others
☐ 1-2 others ☐ More than 4 others

28. Why do you read ACU? Please indicate the *importance* of each of the following:

	Very	Quite	Fairly	Not at all
Because of its price	☐	☐	☐	☐
To read the adverts	☐	☐	☐	☐
To find out about new products	☐	☐	☐	☐
To use as a guide for purchase	☐	☐	☐	☐
To learn more about CPCs	☐	☐	☐	☐
To learn more about programming	☐	☐	☐	☐
It has bright covers	☐	☐	☐	☐
To learn more about operating systems	☐	☐	☐	☐
To learn more about communications	☐	☐	☐	☐
To find out more about Amstrad	☐	☐	☐	☐
Because it's a good read	☐	☐	☐	☐

29. Which of the following would you most like to see featured with ACU:

	Def no	Prob no	Don't mind	Prob yes	Def yes
Cover mounted gifts	☐	☐	☐	☐	☐
Additional supplements	☐	☐	☐	☐	☐
Competitions	☐	☐	☐	☐	☐
Money saving offers	☐	☐	☐	☐	☐
Cover mounted disk	☐	☐	☐	☐	☐

30. In general, do you find the content of ACU:

Well balanced	☐
Often dwells too much in particular areas	☐

(which ones ____________________)

31. In general, do you find the articles in ACU:

☐ Too simple ☐ Too technical ☐ Just right

32. On a scale of 1 to 10, where 1 is poor and 10 is good, how do you rate

The quality of presentation of ACU? __________

The overall value of ACU? __________

33. Which of the following do you read:

	Never	Seldom	Monthly	Subscribe
PC Today	☐	☐	☐	☐
PC Plus	☐	☐	☐	☐
PC User	☐	☐	☐	☐
Which PC	☐	☐	☐	☐
Personal Computer World	☐	☐	☐	☐
Byte	☐	☐	☐	☐

And finally...

We have asked you a number of questions but may not have covered all the areas you feel are important. Are there any further points you would like to make about any aspect of ACU?

Thank you for your help

Please send your completed questionnaire to: The ed., ACU, Sunnyside Cottage, Carluddon, St. Austell, Cornwall PL26 8TY and each copy will be entered into our special ACU prize draw.

ADVERTISERS INDEX

Dunning COMPUTER SERVICES

(0258) 480660

All prices include delivery - just add VAT at 15%. Cheque with order or phone our credit card hotline before 3pm for same day despatch

Access VISA

Dept. ACU, Unit 13C, Sunrise Business Park, Blandford Forum, Dorset DT11 17TE

NEXT DAY DELIVERY (U.K. MAINLAND)

RIBBONS GALORE

We have ribbons for 1000s of printers - if yours isn't listed, give us a call!

		£ per ribbon 1	2+	5+
Amstrad DMP2000/3000	F	3.34	3.17	3.01
Amstrad DMP4000	F	4.70	4.47	4.23
Amstrad 8256/8512	F	3.44	3.27	3.10
Amstrad 8256/8512	MS	3.44	3.27	3.10
Amstrad 9512	F	3.44	3.27	3.10
Amstrad 9512	MS	2.95	2.80	2.66
Amstrad LQ5000	F	5.28	5.02	4.75
Brother M1009/1224	F	3.47	3.30	3.12
Brother M1509/1709	F	4.95	4.70	4.46
Brother M1724	F	7.30	6.94	6.57
Canon 1156A	F	3.73	3.54	3.36
Citizen 120D	F	3.44	3.27	3.10
Citizen Swift 24	F	3.44	3.27	3.10
Commodore MPS801	F	3.34	3.17	3.01
Commodore MPS1230	F	3.43	3.26	3.09
Epson MX/RX/FX100	F	3.95	3.75	3.56
Epson LX80/86	F	2.47	2.35	2.20
Epson FX/MX/RX80	F	3.44	3.27	3.10
Epson LQ800	F	3.64	3.46	3.28
Epson LQ2500	F	4.73	4.49	4.26
Epson LQ2550	F	5.30	5.04	4.77
H.Packard D/Jet Cart.		14.80	14.06	13.32
NEC P2200	F	4.95	4.70	4.46
NEC P6+/P7+	F	5.34	5.07	4.81
OKI 390/391	F	4.60	4.37	4.14
OKI 393	F	9.50	9.03	8.55
Olivetti DM100/200	F	3.43	3.26	3.09
Panasonic KXP1080-83 1090-92, 1124, 1180-90	F	4.00	3.80	3.60
Panasonic KXP1524-40	F	6.90	6.56	6.21
Seikosha SP1200	F	3.44	3.27	3.10
Star LC10	F	3.44	3.08	2.92
Star LC10 4 Col	F	6.86	6.52	6.17
Star LC24-10	F	3.50	3.33	3.15
Star ND/NR/NX15	F	5.71	5.42	5.14
Star NL10	F	5.11	4.85	4.60

F=Fabric MS=Multistrike

DISKS

	Per 10
3" CF2 Maxell	18.90
3.5" Unbranded DSDD	8.20
5.25" Unbranded DSDD	4.80

SAVE THOSE RIBBONS!

RE-INK your own black fabric ribbons the new 'ozone-friendly' way. One can of 're-ink' will save you £££s 11.26

CONTINUOUS PAPER

Top quality tractor fed, fanfold

	per box	1 box £	2 box £
11x9.5			
60gsm (M)	2,000	16.38	14.88
70gsm (M)	2,000	17.65	16.15
80gsm (M)	2,000	19.30	17.80
90gsm (M)	1,000	13.72	12.22
2 Part NCR	1,000	21.14	19.64
11.66x9.25 (A4 size)			
70gsm (M)	2,000	19.78	18.28
80gsm (M)	2,000	23.28	21.88
90gsm (M)	1,000	15.37	13.87
2 Part NCR 80/57gsm	1,000	32.45	30.95

(M) = MICROPERFORATIONS

COMPUTER LABELS

Avery brand - the best! Tractor fed, fanfold.
1, 2 or 3 across - please specify

	1000 £	5000 £
2 3/4 x 15/16	4.25	15.20
2 3/4 x 1 7/16	5.13	18.94
3 1/2 x 15/16	4.55	16.30
3 1/2 x 1 7/16	5.64	22.79
3 1/2 x 1 15/16	8.18	29.99
4 x 15/16	5.34	17.44
4 x 1 7/16	6.39	22.50
4 x 1 15/16	8.19	30.27

Many other labels available including Disk & Laser Labels

SPRITES ALIVE

SPECIAL OFFER

THE ULTIMATE GAMES DESIGNING SYSTEM

THE IDEAL PACKAGE FOR ALL ASPIRING GAMES CREATORS

WANT TO WRITE PROFESSIONAL LOOKING, FAST ACTION GAMES? FINDING MACHINE CODE TOO COMPLEX AND TIME CONSUMING?

LOOK NO FURTHER!!

SPRITES ALIVE HAS BEEN CREATED TO ENABLE YOU TO WRITE YOUR OWN POTENTIAL MASTER GAME.

WITH ALL OF THE DIFFICULT MACHINE CODE ROUTINES ALREADY WRITTEN FOR YOU, ALL YOU NEED IS SOME BASIC PROGRAMMING KNOWLEDGE AND YOU CAN LET YOUR IMAGINATION RUN WILD!!!

SPRITES ALIVE IS AVAILABLE IN TWO FORMATS.

BASIC. THIS VERSION ADDS AN EXTRA 70 COMMANDS WHICH CAN BE USED WITHIN YOUR BASIC PROGRAMS. THE SPRITES DESIGNER SOFTWARE IS ALSO INCLUDED IN THIS PACKAGE.

COMPILER. THIS VERSION CONTAINS ALL THE FEATURES OF THE ABOVE PACKAGE, BUT ALSO INCLUDES THE SPRITES COMPILER PROGRAM. THE COMPILER WILL ALLOW YOUR PROGRAMS TO RUN UP TO 16 TIMES FASTER THAN NORMAL. THE BASIC VERSION OF SPRITES ALIVE IS ALSO INCLUDED WITH THE COMPILER PACKAGE.

BOTH PROGRAMS HAVE THE FOLLOWING FEATURES

- ★ USES SIMPLE BASIC COMMANDS
- ★ WORKS IN MODE 0 OR MODE 1
- ★ SMOOTH PIXEL BY PIXEL MOVEMENT
- ★ TRUE COLLISION DETECTION
- ★ COMPREHENSIVE 75 PAGE MANUAL
- ★ SPRITE SIZES UP TO 32 x 32
- ★ 23k PROGRAM SPACE AVAILABLE
- ★ NO MACHINE CODE REQUIRED
- ★ JOYSTICK/KEYBOARD CONTROL
- ★ AUTOMATIC MISSILE COMMANDS
- ★ AUTOMATIC DIRECTION ANIMATION
- ★ AUTOMATIC MAZE MODES
- ★ 64 SUPER SMOOTH SPRITES
- ★ EXCELLENT DRAWING DESIGNER
- ★ 70 COMMANDS ADDED TO BASIC
- ★ 6 BASIC DEMO PROGRAMS

COMPILER FEATURES

- ★ UP TO 16 TIMES FASTER THAN BASIC
- ★ UP TO 10 TIMES FASTER THAN PANDORA
- ★ 2 ADDITIONAL COMPILER DEMOS
- ★ NO MACINE CODE NEEDED
- ★ SIMPLE TO USE
- ★ COMPREHENSIVE MANUAL

IF YOU CAN PROGRAM IN BASIC YOU CAN USE SPRITES ALIVE

BASIC VERSION .... WAS £22.95...SPECIAL OFFER £18.95
COMPILER VERSION .... WAS £29.95...SPECIAL OFFER £22.95
COMPILER DEMONSTRATION GAME DISC* .... 4 GAMES £2.99
UPGRADE FROM BASIC VERSION TO COMPILER VERSION £4.50
(RETURN SYSTEM DISC WITH CHEQUE)

SUITABLE FOR CPC6128 OR CPC464 WITH 64k MEMORY EXPANSION
SUPPLIED ON DISC ONLY

*THIS DEMONSTRATION DISC SHOWS SOME OF THE VAST CAPABILITIES OF THE SPRITES ALIVE COMPILER. INCLUDES 'SPACE FROGGY' BY GARY SCOTT - (OUTSTANDING ARCADE TYPE ACTION GAME)

**GLENCO SOFTWARE, DEPT ACU,
15 ALFORD LANE, WHITEHOUSE FARM,
STOCKTON ON TEES, CLEVELAND, TS19 0QP
TELEPHONE: (0642) 606358**

PROTON SOFTWARE

Access VISA

Tel: 0462 686977 24 Hour. FAX 0462 673227

***Cheques/PO's to:* PROTON SOFTWARE, ENTERPRISE HOUSE, BLACKHORSE ROAD, LETCHWORTH, HERTS, SG6 1HL.**

PACLAND Disc £4.99	PACMANIA Disc £4.99	WHEELS OF FIRE Cass £9.99 Disc £16.99	MAN UNITED Cass £4.99 Disc £8.99
PLEASE SEND 50p P&P IF UNDER £5	PHONE NOW AND PLACE YOUR ORDER	NEW RELEASES SENT ON DAY OF RELEASE	PRODUCTS IN STOCK SENT SAME DAY

	Cass	Disc
Adidas World Champion Football	---	9.99
AMX Mouse + Art	---	55.00
Apprentice	6.99	9.99
Black to the Future 2	--	9.99
Bloodwych	6.99	9.99
Brian Clough Football	6.99	9.99
Cabal	6.99	10.99
Castle Master	6.99	9.99
Chase HQ	6.99	10.99
Country Cricket	6.99	9.99
Cricket Master	6.99	9.99
Cyberball	6.99	9.99
Dan Dare 3	6.99	---
Days of Thunder	TBA	TBA
Dick Tracey	TBA	TBA
Dragons of Flame	6.99	9.99
Dragon Spirit	6.99	10.99
Dr Dooms Revenge	6.99	10.99
Dynasty Wars	6.99	9.99
Emlyn Hughes	7.99	10.99
Escape From The Planet of the Robot Monsters	6.99	8.99
Fire & Forget II	TBA	TBA
Flimbos Quest	6.99	-
Fun School 3	6.99	9.99
Gazza's Soccer	7.99	10.99
Golden Axe	6.99	9.99
Gunship	10.99	13.99
Grand Prix	6.99	9.99
Hard Drivin	6.99	10.99
Hard Drivin II	6.99	9.99
Heroes	6.99	9.99
Hero's of Lance	7.99	14.99
Hollywood Collection	9.99	16.99
Hostages	6.99	9.99
Indy Jones Last Crusade	6.99	9.99
Internat. 3D Tennis	6.99	9.99
Judge Dread	6.99	9.99
Kick Off 2	6.99	9.99
Klax	6.99	9.99
Lazer Squad	7.99	10.99
Line of Fire	6.99	9.99
Lords of Chaos	6.99	9.99
Lost Patrol	6.99	---
Microprose Soccer	9.99	12.99
Midnight Resistance	6.99	9.99
Monty Python	6.99	9.99
Moonwalker	6.99	10.99
Narc	6.99	9.99
N/Z Story	---	10.99
New York Warriors	6.99	9.99
Ninja Remix	6.99	9.99
Operation Wolf	7.99	10.99
Op Thunderbolt	7.99	10.99
P47	6.99	10.99
Pipemania	6.99	9.99
Platinum	10.99	13.99
Puzznic	TBA	TBA
Rainbow Islands	7.99	10.99
Rick Dangerous	6.99	9.99
Rick Dangerous II	6.99	9.99
Robocop	7.99	10.99
Saint Dragon	6.99	9.99
Satan	6.99	9.99
Shadow of the Beast	8.99	11.99
Sim City	6.99	9.99
Sly Spy Secret Agent	6.99	9.99
Snowstrike	7.99	9.99
Soccer Mania	9.99	13.99
Strider	6.99	9.99
Stunt Car Racer	6.99	9.99
Super off Road Racer	7.99	11.99
Teenage Mutant Turtles	8.99	11.99
The Hit Squad	6.99	9.99
The Night Bread	TBA	TBA
The Spy Who Loved Me	6.99	9.99
Tie Break	9.99	13.99
TNT	9.99	16.99
Total Recall	TBA	TBA
Trivial Pursuit	9.99	13.99
Turbo Outrun	6.99	10.99
Turrican	6.99	9.99
Tusker	6.99	10.99
Twin World	6.99	9.99
Wheels of Fire	9.99	16.99
Wolrd Class Boxing Manager	6.99	9.99
Xenophobe	6.99	9.99

PRODUCT	COST
TOTAL	

NAME ______
ADDRESS ______

MAKE YOUR AMSTRAD EARN!

Yes making money with your Amstrad becomes incidental when you know how. Your micro is, if only you knew it, a gold mine. The size and make is irrelevant. Make the initial effort **NOW** by starting your own.

HOME BASED BUSINESS.

This may be the most important move you will ever make!

REMEMBER: You'll never get rich by digging someone else's "ditch". Anyone in the country, including YOU, can become very rich in a relatively short period of time just by doing a few basic things! It's more rewarding than playing games. The benefits are many and varied. Full or part time. For FREE details send S.A.E. to:

HOME BASED BUSINESS

31 PILTON PLACE (ACU 31)
KING AND QUEEN STREET
WALWORTH, LONDON SE17 1DR

ONLY POOLS AND HORSES

Every program written by a mathematician who has spent many years in the betting industry. Programs that utilise the tried and trusted methods of the professional, not pie in the sky theories that fail to pass the test of time.

FOOTBALL BOXFORM Written by a former pools expert for Littelwoods. The program has forecast over 50% more draws than would be expected by chance. Homes, aways and draws shown in order of merit and true odds given for every match. Merit tables show at a glance the teams currently in form and those having a lean spell. Australian Pools program included in the price.

POOLS PLANNER by the same author. Full details given of 369 easily entered block perms ranging from 9 to 73960 lines and from 12 to 56 selections. All are accepted by the pools firms and are checked in seconds by your computer.

RACING BOXFORM Course characteristics (built into the program) as well as the form of the horses are considered to speedily produce an order or merit for each race. Designed for flexibility allowing users to amend the program if they wish. Price still includes the highly acclaimed **HANDICAP WINNER** - more than 1000 winners every year - over 25% of them at 5/1 or better.

PRICES (Tape) £15.95 each. £25.95 any two. £35.95 all three. For discs please add £2 per program. Order two or more and receive **FREE** a program to work out almost any bet. So good its used by bookies.

Advertised for six years in the sporting and computer press

BOXoft CLEVER..GET THE BEST
BOXOFT (ACU), 65 Allans Meadow,
Neston, South Wirral L64 9SQ
Cheque/P.O./Access/Visa Tel: 051-336-2668

BBC B & MASTER
AMSTRAD CPC & PCW
COMMODORE 64/128
SPECTRUMS

FRENCH TEST

- suitable for beginners and advanced alike -

£14.95 (Disc only)

- Over 2500 words organised into more than 80 different topics and 40 dictionary tests plus dozens of useful phrases.
- Flexibility - select from GCSE topics (Basic and Higher) or enter own vocabulary and merge a term's homework for revision.
- Two levels - Quick Test for rapid revision and Full Test for luanguage learning with inbuilt PROGRESS ASSESMENT.

" Accurately and slickly presented, Guillotine game very well done" AA
" An excellent utility which puts the fun back into learning" ACU

NOTE: Using this program ensures successs at GCSE - pass or we guarantee to refund your money in full.

Including **LA GUILLOTINE**

(cheques etc. to:) GMF Programs, Dept ACU, 21 Northwick Park Road, Harrow, Middx. HA1 2NY Tel. 081 861 2891 + Evenings & Weekends.

THE COMPUTER WORKSHOP

SOFTWARE PUBLISHERS, TUTORIALS, AND SMALL BUSINESS IDEAS FOR THE HOMEBASE MICRO COMPUTER USER.

THE ULTIMATE HOME BASED COMPUTER SERVICE

DEPT 7, P.O. BOX 111, ROCHESTER, KENT, ME2 2TS. TELEPHONE 0634-710941 FAX: 0634-718062

SUCCESS AT YOUR FINGERTIPS WITH YOUR MICRO COMPUTER

THE COMPUTER WORKSHOP is offering you the chance to start your own home based business. Your micro is capable of making MEGA MONEY with the right guidance.

With us guiding you step by step you can enter into the world of high finance. Even the smallest of home computers are capable of doing much more than just playing games. If used to it's full potential your computer is capable of running most small, or home based businesses.

Let us help you Unlock the full potential of your computer today, and start your very own, home based business tomorrow. We can even help you publish any programs you have written. Our publishing department is waiting to hear from you, if you think your program is good enough for the open market.

For more infromation send a large S.A.E. to **THE COMPUTER WORKSHOP, DEPT 7, P.O. BOX 111, ROCHESTER, KENT. ME2 2TS.**

WE ARE NOT ATTACHED IN ANY WAY TO THE MAIL ORDER INDUSTRY

THE HOME STUDY DISC

HOME STUDY:	The essential tool for students. Simplifies revision. Includes a typing tutor mode complete with test data.
HOME FILE:	Keeps all your records in order. Special information field. 12 instantly accessible files, search, sort etc.
HOME FINANCE:	12 accounts supported. 200 entries a month on each account. Automatic standing orders, salaries etc.

Plus Free!!! DISC MANAGER: A really useful utility for CPC owners.

All four programs supplied for the 6128 complete with manuals on one disc for only £11.95. Cheques or P.O.s made payable to,

MJO SOFTWARE (ACU)

45 Station Avenue, Tile Hill Village, Coventry CV4 9HR

JACKSON COMPUTERS LIMITED

JOIN OUR DISCOUNT CLUB!

Life membership for £8.50

Software/Hardware Discounts of up to 15% off RRP.
All AMSTRAD and other leading makes of software available.
Complete computer system, printers, modems, cables.

Amstrad 464 Plus with colour monitor	**£316.25**
Amstrad 6128 Plus with colour monitor	**£419.75**
PCW88256/512	**£332.35/£539.35**
Amstrad PCW 9512	**£557.75**
PC2000 Range	**Ring for details**
Laptop Computers	**Ring for details**

All prices include VAT.
Also free Life membership when you purchase any 464/6128+ PCW AMSTRAD computer. Tel: between 9am-5pm 081-655 1610

Send for full price list and membership form to:
25 Spring Lane, Woodside, South Norwood London SE25 4SP

BUSINESS SOFTWARE for the CPC6128 and 6128+ - Small Business Accounts £27.60 - Costmaster £28.75 - Sample disc, contains all our software without printing/disc routines £4.60 - A.B.C. Software, 31 Magdalen Way, Worle, W.S.M., BS22 0PG.

CHRISTIAN FRIENDSHIP/ MARRIAGE INTRODUCTIONS. Fellowship Groups. Social Events. Nationwide. New Members Welcomed. Also 1991 Singles Holidays - CFF Dept/J92, Edenthorpe, Doncaster.

FOUNDATION SOFTWARE
MULTI-TRACK STEP TIME MIDI SEQUENCER

Probably the most musical package for your CPC. Imagine composing and arranging music for any 8 instruments from a bank of 100 and any 4 percussion sounds all playing simultaneously. Its ideal for composing and playing your own musical masterpieces or as a backing band whilst you play along. Music is entered in your own time using the powerful Step Time Editor (v4.17):

* Up to 99 Patterns and 256 Bar song memory.
* Variable Tempo, Beats/Bar and Note Volume in each Pattern. Full 8 octave note range. Patterns may be copied and transposed.
* Each instrument is assigned a MIDI Channel along with Vibrato and Sustain. MIDI Clock is transmitted to sync Auto Accompaniment.
* Now available to work with any MIDI Interface and runs on CPC464 (with disc drive), CPC664 and CPC6128.
* Also included is the MIDI Song Linker which allows several songs to be played one after another and 16 songs from the song library.

For further details or advice please telephone.

AMSTRAD CPC DISC £34.95. send cheques to: FOUNDATION SOFTWARE. 27. CROFTERS END, SAWBRIDGEWORTH HERTS. CM23 0DF. TEL (0279)725788 (evenings/weekends)

AMSTRAD ACU CLASSIFIED

Cash In On ACU Classified

If you would wealthier be, just ask yourself these questions three:
1. Do you run a small business selling software, hardware or peripherals for CPC users?
2. Do you offer services for commercial profit that no CPC owner should be without?
3. Are you finding it increasingly difficult to find competitive rates to advertise your wares?

If the answer to any of the above is "yes," then you simply cannot afford to miss ACU classified, our fantastic new advertising outlet with incredible rates, tailor-made for the smaller business person.

BOOK NOW, sure in the knowledge that your advertisement will catch the attention of thousands of eager CPC fanatics.

Please send your copy, or this coupon to: Adrienne Gilliver, ACU, Panini House, 116-120 Goswell Rd., London, EC1 or phone us on 071-490 7161. And don't forget to tell us any classification you require together with your name and address etc.

RATES: Semi display £10 scc + VAT, lineage £20 + VAT (max 30 wds)

3x1 ☐ 6x1 ☐ 6x2 ☐

Please tick box and classification you require

I enclose my cheque/postal order for £ ________ payable to MCPC

NAME ____________________ Daytime tel no. ____________

ADDRESS ____________________ Date ____________

____________________ Signature ____________

____

CLASSIFICATION ☐ **Software** ☐ **Courses/Education**

☐ **Services** ☐ **Other** ________ (state)

A NEW ERA OF GREATNESS DAWNS FOR 2000AD

BRITAIN'S BIGGEST SELLING SCIENCE-FICTION/FANTASY COMIC

THRILL POWER BREAKS LOOSE IN PROG 723!

NEW SERIES

MORE COLOUR

FREE GIFT

*The return of **Sam Slade** as Robo-Hunter
***Nemesis & Deadlock** – A most sinister team up
***Bix Barton** *'Carrying On!'*
*NEW STORY – **Tao de Moto**
***Rogue Trooper**
***Judge Dredd**
ALL IN FULL COLOUR! FOR THE FIRST TIME EVER

PLUS

FREE Judge Dredd MegaScan™ full-size double sided fold-out **poster** which includes the **very first Judge Dredd** story ever printed!

2000 AD **PROG 723**, on sale **16 March**, at all good newsagents. 45p. Order your copy now, **or else!**

2000 AD · THE GALAXY'S GREATEST COMIC!





Disney's
DuckTales
THE QUEST FOR GOLD
FORTUN KIOSKEN
BIG BUCKS!
EXCITEMENT!
DANGER!
ADVENTURE!
The ultimate challenge has been issued... now, you must race across the globe in search of fortune and glory to become the richest duck in the world!! The adventure will require all your skills and courage
ARE YOU DUCK ENOUGH?
Adapted by:
TITUS
THE BEST VIDEO GAMES
Disney
SOFTWARE
Available for Amiga® - PC / PS - Atari® ST - Commodore 64 - Amstrad® CPC / CPC+ / GX 4000 - Spectrum®
Amiga, Commodore, Amstrad and Spectrum are registered trademarks.
For more information please call 0268 541 212
© The Walt Disney Company